QK180
.F64
1941a
v.2

2. S. sitchensis Meyer. A perennial herb with creeping rather stout rootstocks; leaves erect or ascending, 15-30 cm. long, oblanceolate, the leaflets 13-15, dull green above, glaucous beneath, 2-3 cm. long, ovate, broadly cordate at the base or some truncate, rounded at the apex, the margi convex, evenly toothed, the teeth triangular-ovate, mucronate, 1.5-2 mm. long, petioles 4-6 cm. long, stipules membranous, purplish red; spike 5-8 cm. long, 2-2.5 cm. wide, tapering toward the apex; calyx-lobes ovate, 2.5 mm. long, obtuse, spreading; stamens 2-4, 8 mm. long, erect, the stigmas brushlike, the style 2-3 mm. long; achenes not seen. (S. canadensis L. var. latifolia Hook.).

Infrequent, occurring along streams in boggy places or in high bogs. Seen only in the southern part of our range. Bungalow R. S., 3000 ft.; near Oxford R. S., 4500 ft.

MISSOURI BOTANICAL
GARDEN LIBRARY

23. Dryas L. Mountain Dryas.

Low tufted and matted undershrubs with alternate simple leathery bifacial leaves. Flowers solitary on elongated peduncles at the apex of a tuft. Calyx 8-parted, the tube shallowly saucer-shaped. Petals 8. Stamens numerous, the filaments subulate. Pistils numerous, the styles elongating and plumose in fruit. Fruit a tailed achene.

1. D. octopetala L. Leaves ~~very~~ thick, the blades oval or elliptical, 1-1. cm. long, green and glabrate on the upper surface, very rugose, the veins deeply impressed, the lower surface covered with a white felt-like tomentum the margin crenate, revolute, the stipules brown, 3-4 mm. long, lance-acute peduncles 2-4 cm. long, woolly, bearing stalked glands; calyx-tube woolly and glandular, the lobes 8, oblong-lanceolate, glabrous within, 3.5-4 mm. long, obtuse; petals bright yellow, broadly obovate or oval, 8 mm. long; stamens subequal to the calyx-lobes; receptacle hemispherical in fruit, hirsute, the achenes 3 mm. long, oblanceolate, acute at the base, the plume 10-12 mm. long.

An holarctic species in rock crevices on the highest mountain tops, known only from the summit of Snowy Top Mt., 7400 ft., Spling 5924; 7274. in our region

Leguminosae. Pea Family.

Ours herbs with alternate, stipulate, compound and usually pinnate leaves. Flowers perfect, in racemes or head-like clusters, strongly irregular. Calyx of 5 partially united sepals, or sometimes by the nearly complete union of the sepals, 2-lipped. Corolla zygomorphic ~~(i.e. papilionaceous)~~ with 5 dissimilar petals, the upper (the banner) larger, erect, spreading or laterally re ~~bent in the middle, the blade erect,~~ the lateral pair (the wings) oblique and enclosing the lowermost pair which are more or less united along their edges to form a boat-shaped structure (the keel), all ~~distinct and~~ more or less clawed. Stamens 10, ~~most often 9,~~ hypogynous, separate (Thermopsis) or the filaments of nine united into a tubular sheath surrounding the ovary, ~~one~~ the uppermost stamen distinct, or all united (Le Pistil 1, superior, 1-chambered, rarely 2-chambered at maturity by the intrusion of the sutures, forming ~~at maturity~~ a pod (legume) which is usually dehiscent by 2 valves, but ~~sometimes elastically,~~ sometimes indehiscent. Seeds mostly kidney-shaped or globose, without endosperm. ~~Stamens all distinct in Thermopsis, all united in Lupinus.~~

0 Leaves palmately compound, the leaflets 7-13 — 1. Lupinus

0 Leaves pinnately compound, the leaflets 3-22 or more

2 Leaves 3-foliolate ~~(see also Lotus americanus)~~

4 Stamens distinct; flowers in a terminal raceme — 2. Thermopsis

4 Stamens united; flowers in globose heads or in lateral axillary racemes

6 Flowers in head-like clusters — 3. Trifolium

6 Flowers in racemes or spikes ~~(see third category)~~

8 Plants with decumbent or prostrate stems — 4. Medicago

8 Plants with erect stems 1-3 m. tall — 5. Melilotus

6 Flowers axillary — 6. Lotus

2 Leaves with 5-22 leaflets or more

4 Foliage glandular-dotted; pod armed with 8 curved prickles — 7. Glycyrrhiza

4 Foliage not glandular-dotted; pod smooth

6 Flowers in umbels or solitary; leaves 10 < without tendrils, odd-pinnate with 3-7 leaflets — 6. Lotus

6 Flowers in racemes; leaflets 9-22 or more, 10 < or if fewer, the leaves terminating in tendrils

strongly flattened, 3 Fruit ~~more flat~~ divided into 2 or more 2 < rounded joints which break apart at maturity, each containing 1 seed — 8 Hedysarum

8 Fruit not segmented, the margins parallel

12 Leaves odd-pinnate, not terminating in 16 in tendrils — 9. Astragalus

12 Leaves evenly-pinnate, the rachis 16 terminating in a tendril or bristle

14 Style hairy on all sides at the tip — 10. Vicia

14 Style hairy only on upper side at 18 the tip — 11. Lathyrus

~~25~~

1. Lupinus (Tourn.) L. Lupine.

(Ours)

l.c. Perennial herbs with palmately compound leaves of 7-13 leaflets, the pubescence commonly silky; stipules subulate, very slender. Flowers in terminal racemes, often appearing whorled, the bracts persistent or deciduous. Calyx strongly 2-lipped, the upper lip formed of two partially united sepals, sometimes produced backwards at the base to form a short hump or sac, the lower lip formed of three wholly united sepals. Corolla blue, purple or lavender, rarely white, the banner often with a whitish spot in the middle which later becomes reddish purple, the keel abruptly bent, sickle-shaped, the margins sometimes ciliolate. Stamens all united, the anthers alternately larger and smaller. Pod ~~strongly~~ flattened, mostly oblong, more or less hirsute, dehiscent by 2 valves. Seeds commonly 2-6.

The fruit and seeds of some lupines in our region, particularly L. sericeus, are known to be poisonous to sheep and ~~are frequently~~ may be a serious ~~factor~~ menace where abundant.

0 Leaves glabrous on the upper surface

2 Leaflets commonly 1-2 cm. wide; bracts 7-10
6 mm. long X — 1. L. Burkei

2 Leaflets commonly 6-10 mm. wide; bracts
6 3-4 mm. long

4 Banner of corolla 8-10 mm. in diameter;
8 flowers blue en masse, rarely white — 2. L. laxispicatus

4 Banner of corolla 12-15 mm. in diameter; flowers
8 rich purple en masse — 3. L. pseudoparviflorus

0 Leaves pubescent on both surfaces

2 Pubescence of stems and leaves mostly
6 appressed and silky, not spreading;
flowers in loose verticillate racemes;
pedicels usually 3-5 mm. long.

4 Stems prostrate, curving upwards at the
8 tips; racemes 1-3 cm. long, ovoid — 4. L. depressus

4 Stems erect; racemes 10-20 cm. long

6 Upper lip of calyx saccate at the
10 base, forming a protuberance about
1 mm. long — 2. L. laxispicatus

6 Upper lip of calyx rounded but not
10 saccate — 5. L. sericeus

2 Pubescence of stems and leaves more or
6 less spreading; flowers in crowded
spikes; pedicels 1-3 mm. long

4 Flowers violet, veined with blue;
8 herbage ashy-green; spikes very
erect — 6. L. retrorsus

4 Flowers lavender or nearly white;
8 herbage silvery white; spikes
more or less curving upwards — 7. L. leucophyllus

1. L. Burkei S. Wats. A showy perennial, sometimes forming rounded clumps a meter in diameter, the stems glabrous below, sparingly appressed-hairy above, leafy throughout; petioles of lowermost leaves 20-40 cm. long, nearly glabrous, the leaflets of uppermost leaves 5-10 cm. long, 1-2 cm. broad, oblanceolate, obtuse at the apex but shortly mucronate, glabrous and deep green on the upper surface, very soft and smooth, thinly appressed-hairy on the lower, spikes showy, 10-40 cm. long, the rachis and pedicels rather thinly pubescent, the latter slender, 2-3 mm. long; bracts 7-10 mm. long, setaceous, plumose-hairy, soon falling; calyces silky-hirsute, the upper lip 3 mm. long, retuse, the lower lip 4-4.5 mm. long; corolla blue, becoming purple, the banner rotund, glabrous on the back, 8-9 mm. in diameter, the wings 10-11 mm. long, 6-7 mm. wide, obovate, subequal to the abruptly bent glabrous keel; pod 2-2.5 cm. long, 5-6 mm. wide, 5-8-seeded.

Common in meadows at lower elevations, particularly in the north, locally abundant in subalpine meadows or bald spots amongst Bear Grass in the St. Joe and Clearwater forests.

2. L. laxispicatus Rydb. Stems several, slender, erect or ascending, 30-50 cm. tall, very thinly appressed-hirsute, the internodes 4-8 cm. long; petioles of the basal leaves 10-15 cm. long or more, slender, clothed like the stems, those of the uppermost 1-2 cm. long; stipules 4-5 mm. long, silky; leaflets 8-11, narrowly oblanceolate, mostly acute at the apex, 4-6 (-10) cm. long, 6-10 (15) mm. wide, thinly appressed-hirsute on the lower surface, softly appressed pubescent or nearly or quite glabrous on the upper; racemes 15-25 cm. long, the rachis and pedicels pubescent with short more or less spreading hairs, the latter 3-4 mm. long; bracts 2-4 mm. long, silky, soon dropping; calyx 4.5-5 mm. long, silky-hirsute, the lower lip 4 mm. long, ovate-lanceolate, obtuse, the upper somewhat shorter, retuse, distinctly humped at the base, the hump about 1 mm. long; corolla violet-blue, veined with deeper blue (rarely white) the banner 8-10 mm. in diameter, glabous or hirtellous on the back, the wings obovate-cuneate, 8.5-11 mm. long, exceeding the abruptly bent glabrous keel; pods 2-2.5 cm. long, 3-4-seeded, softly silky.

Upper Priest Lake, 2700 ft.; Lookout Mt., 6000 ft.; Scurvy Mt., 5800 ft.; divide below St. Joe and Clearwater R's.; Harrison; Priest R. Exp. Sta., 2700 ft.; South Baldy Mt.; Roman Nose; Upper Priest R., 4000 ft.

3. L. pseudoparviflorus Rydb. Stems erect or ascending, 50-70 cm. tall, forming a showy clump from woody, well-developed rootstocks, softly downy with short more or less spreading hairs; petioles of the basal leaves 10-20 cm. long, those of the upper commonly 5-10 cm. long; stipules 4-5 mm. long, silky; leaflets commonly 11-13, narrowly oblanceolate, 4-7 cm. long, 5-12 mm. wide, abruptly acuminate at the very apex, glabrous or nearly so on the upper surface, thinly appressed-hirsute on the lower; racemes rather crowded, 15-25 cm. long, subverticillate, the flowers rich purple, on pedicels 5-7 mm. long, subtended by silky deciduous bracts 3-4 mm. long, the rachis and pedicels velvety with a short close pubescence; upper lip of the calyx about 4 mm. long, produced backward into a distinct hump about 1 mm. long, the lower lip about 6 mm. long, both silky; banner of corolla 12-15 mm. in diameter dark blue becoming a rich purple, glabrous on the back, the wings violaceous, veined with blue, keel not ciliate; pod 2 cm. long with 3-5 seeds. (L. laxiflorus var. pseudoparviflorus C. P. Sm. et St. John n. c.

Open woods;

Fraser Mill, Epling.

4. L. depressus Rydb. Stems silvery, numerous, much-branched, prostrate or decumbent, the new growth erect, 10-15 cm. tall, silky; leaves numerous, the petioles slender, 4-8 cm. long, clothed like the stems, the upper somewhat shorter than the lower; stipules 3-5 mm. long, setaceous; leaflets mostly 9, 1-2 cm. long, 2.5-3.5 mm. wide, oblanceolate, mostly obtuse at the apex, silky-hirsute on both surfaces; racemes ovoid, 1-3 cm. long, the peduncles subequal, the bracts subulate, 4-5 mm. long, soon deciduous; calyx 6-7 mm. long, villous-hirsute, the upper lip 4 mm. long, bifid, the lower somewhat longer, shortly trifid, the lobes acute; corolla blue, veined with deeper blue, the banner rotund, 8 mm. in diameter, sparingly hirsute or glabrous on the back, emarginate, the wings 9 mm. long, obovate-cuneate, exceeding the glabrous keel; pods 10-15 mm. long, 7-8 mm. broad, silky-hirsute, 1-2 seeded.

Scattered over gravelly mountain slopes. Divide betw. the St. Joe and Clearwater Rs., 5600 ft., Leiberg 1201; Pole Mt., 6000 ft., Epling and Kempf; Bearskull Mt., 6000 ft., Epling 10329.

5. L. sericeus Pursh. Stems several, leafy, ascending, 30-60 cm. tall, prevailingly silky with appressed hairs; petioles of the basal leaves commonly 10-15 cm. long, silky-hirsute or appressed, the stipules subulate, 5-10 mm. long; leaflets commonly 7-9, 4-10 cm. long, 5-10 mm. wide, oblanceolate, mostly acute but sometimes obtuse, especially of the lower leaves, silvery on both surfaces; racemes commonly 15-20 cm. long, the bracts lanceolate, soon deciduous, 4-8 mm. long, usually shorter than the calyx but sometimes exceeding it; pedicels ascending, slender, 3-5 mm. long; calyx silky-hirsute, the upper lip 3.5-5 mm. long, ovate, notched, the lower lip lanceolate, commonly decurved, 5-6 mm. long; corolla blue or violet, the banner rotund, 8-11 mm. in diameter, hirsute on the back, the wings 9-10 mm. long, 5-6 mm. broad, enclosing the ciliolate keel; pods silky, 2-2.5 cm. long, 2-4 seeded.

Type collector taken by Lewis opposite Kamiah. Cottage Island; Upper Priest R.; Thatuna Hills; St. Maries R.; Santa; Moscow; Bonners Ferry; Lake Coeur d'Alene; Priest R. Exp. Sta.

Plains and open hills;

6. L. retrorsus Henders. Stems several, erect, 40-100 cm. tall, ashy-green or sometimes silvery, very leafy at the base, bearing a soft long wool which is spreading or retrorse, internodes 3-6 cm. long; stipules setaceous, 1.2-5 cm. long; petioles of basal leaves 15-25 cm. long, those of the uppermost 2-3 cm. long, all clothed like the stems; leaflets 9-11, 3-11 cm. long, 8-25 mm. wide, mostly oblanceolate, acute or obtuse at the apex, softly hirsute on both surfaces, the upper more velvety; spikes dense, very erect, 10-25 cm. long, 2-2.5 cm. wide, the rachis woolly with short hairs; pedicels spreading-pubescent, 2-3 mm. long; bracts subulate, 5-15 mm. long, silky hirsute, spreading or recurved in the bud, giving the undeveloped spike a characteristic aspect, persistent; calyx silky, the upper lip 6-7 mm. long, shallowly incised, rounded at the base, the lower lip commonly 8 mm. long, decurved-arcuate; flowers 10-12 mm. long, the corolla violet-blue, veined with blue, the banner strongly reflexed, hirsute on the back, 8-10 mm. in diameter; keel ciliate; pods silky-hirsute, 1-2 cm. long, 8-10 mm. wide with usually about 4 seeds.

Common in pastures and meadows at low elevation verging on the grass-lands. The type coll. was made at Harrison by L. F. Henderson.

7. L. leucophyllus Dougl. Stems several, ascending, 40-60 cm. tall, branched, very leafy, the entire plant softly hirsute with white spreading hairs, hoary; petioles commonly 3-8 cm. long; stipules subulate, about 1 cm. long; leaflets commonly 6-9, oblanceolate, 3-8 cm. long, 8-12 mm. wide; spikes dense, 10-20 cm. long, 2.5 cm. wide, not strictly erect, but somewhat ascending; the bracts subulate, 8-12 mm. long, soon deciduous, ascending in bud; pedicels 2-3 mm. long; upper calyx lobes 6 mm. long, rounded at the base, the lower subequal, very softly hirsute; corolla lavender or nearly white, the banner strongly reflexed, hirsute, commonly 8 mm. in diameter, wings nearly or quite 10 mm. long, the bend of the keel usually apparent, the keel ciliate; pods 2-3 cm. long, 3-4 seeded, the seeds flesh-colored, rather glaucous, 5 mm. long.

Occasional on basalt outcrops in hot sunny places. Post Falls; Arrow; divide betw. the St. Joe and Clearwater Rs., 5200 ft.

2. Thermopsis R. Br.

Erect perennial herbs with alternate palmately trifoliolate leaves bearing conspicuous leaf-like stipules. Flowers showy, yellow, in terminal racemes. Calyx campanulate, 5-lobed, the lobes subequal. Keel of the corolla as long as the wings or longer. Stamens 10, ~~distinct.~~ separate. Pods straight or somewhat curved, linear, flat, many seeded.

1. T. ovata (Robins.) Rydb. Golden Pea. Stems from a creeping rootstock, branching somewhat in the upper axils, all glabrous or nearly so; stipules oval, somewhat clasping, 2-3 cm. long, 1-2 cm. wide, petioles 2-3 cm. long, hirtellous, leaflets oval or rhomboid-oval, 4-6 cm. long, 2-3 cm. wide, obtuse at the apex, narrowed below the middle and somewhat acute at the base, sessile, the upper surface glabrous, the lower thinly clothed with short hairs; raceme hirtellous, 5-15 cm. long, bracts lanceolate or oblanceolate, 5-15 mm. long; calyx 1 cm. long, hirtellous, the lobes narrowly deltoid, acute, 2.5 mm. long, pedicels 2-4 mm. long; corolla bright yellow, nearly thrice the length of the calyx, the banner 2 cm. long, keel notched, the wings 22-23 mm. long; pods erect, brownish gray, 4-6 cm. long, 6-7 mm. wide, flattened, woolly.

Frequent in the southern part of our region in usually open woods on open slopes below 3000 ft. Separable from T. montana Nutt. by its oval leaflets, that species having linear leaflets and from Larisey's study (1940) a plant of more southern distribution. The type of T. ovata is Piper 1489 from Cedar Mt., Latah Co. Ida.

3 Trifolium (Tourn.) L. Clover. Trefoil.

Low annual or perennial herbs with alternate trifoliolate leaves and flowers in head-like clusters subtended by bracts which may be united into a cup-shaped involucre. Calyx tubular-campanulate, 5-lobed, the lobes mostly subequal. Corolla withering-persistent over the short pod, purple, pink or white. Stamens 10, the upper one free, the remainder united. Pod included within the persistent corolla, with few or solitary seeds.

0 Heads 5-10 mm. in diameter; annuals

2 Heads naked, the flowers reflexed in age — 1. T. procumbens

2 Heads subtended by a cup-shaped, 8-9 6 lobed involucre — 2. T. microcephalum

0 Heads 10-30 mm. in diameter; perennials

2 Flowers rose-purple, fading blue

4 Herbage and calyces glabrous — 3. T. Douglasii

4 Herbage and calyces hairy — 4. T. pratense

2 Flowers white, sometimes tinged with lavender or rose, fading cream color or brownish

4 Calyces hirtellous, the teeth 3-4 mm. long — 5. T. latifolium

4 Calyces glabrous, the teeth 2 mm. long — 6. T. repens

1. T. procumbens L. Low Hop Clover. Very slender annual, 10-30 cm. tall, the stems procumbent or ascending; leaves cauline, the petioles shorter than the blades, stipules small, rhomboidal, the leaflets obcordate or obovate, serrulate above; heads glabrous, 12-20 flowered, reflexed in age; calyx globose, the tube campanulate, the teeth unequal; corolla yellow, 3-4 mm. long, the banner obovate; pod 1-seeded.

Introduced from Europe, widespread but sporadic from Atlantic to Pacific.

2. T. microcephalum Pursh. An inconspicuous annual thinly hirsute-villous throughout, stems weak, decumbent, 10-20 cm. long; stipules 7-8 mm. long, ovate, toothed above and acuminate, petioles slender, 1.5-4 cm. long, leaflets obovate-cuneiform, 10-12 mm. long, truncate or notched at the apex, finely toothed above; heads hemispherical, 5-10 mm. in diameter, inconspicuous, the involucre cup-shaped, mostly 8-9 lobed, the lobes ovate, 4 mm. long, acuminate to a sharp point, 3-veined; calyx nearly sessile, 4-4.5 mm. long, the tube 1.5-2 mm. long, the mouth oblique, the upper three teeth partly joined, all tapering, subspinose; corolla 3.5 mm. long, pale pink; pod 1-seeded.

In wet meadowy places. Kootenai Co., Sandberg; Julietta, Leiberg 310; Pack River, Christ 554.

3. T. Douglasii House. A perennial with two or three stems from a stout root 20-50 cm. tall, pale green and somewhat glaucous, glabrous; leaves few, the leaflets 1-5 cm. long, oval or oblong, cauline leaves on petioles 3-10 cm. long, the stipules subfoliar, adnate 1/2 to 2/3 their length, clasping the stem, the free portion 1-2 cm. long, very acute, strongly veined, the leaflets 4-12 cm. long, 6-12 mm. wide, acute, minutely serrulate, strongly veined, rugulose; heads dense, subglobose, 2.5-3.5 cm. in diameter on peduncles 5-15 cm. long, involucre none; calyx glabrous, the tube 2.5-3 mm. long, oblique, the teeth unequal, the lowermost subulate, very acute, straight, the upper four more or less contorted, broader at the base, all subspinose; corolla rose-purple, 12-16 mm. long, fading blue.

Occasional in meadows at lower elevations. Little Potlatch R.; highlands of Spokane and Coeur d'Alene rivers, Geyer 472 (Kew Herb.); Weippe Meadows; Santa.

4. T. pratense L. Red Clover. Stems several, rather stout, 30-60 cm. long, thinly pubescent; stipules membranous, 1-2.5 cm. long, free above, attenuate; leaflets oval or obovate, 2-4 cm. long, rounded or notched at the apex, thinly pubescent, entire; heads broadly ovate, 2.5-3 cm. tall, subtended by a single reduced leaf, not involucrate; calyx-tube thinly hairy, 3.5 mm. long, the teeth awl-shaped, very acute, unequal, the longest 4-5 mm. long; corolla reddish-purple, 13-15 mm. long.

Frequent in waste places, meadows and along trails and roadways; naturalized from Europe.

5. T. latifolium (Hook.) Greene. A perennial herb from a stout root, with slender rhizomes, the erect stems 5-25 cm. tall, appressed-hirtellous; stipules green, 10-20 mm. long, leaflets very variable in size, 6-35 mm. long, rhombic-ovate, or obovate, obtuse or rounded, the margins erose-denticulate, the teeth terminating in minute spines, the lower surface appressed-hirtellous, petioles 2-10 cm. long; flowers whitish, tinged with lavender, reflexed and brown in age, the heads 2.5-3 cm. broad, borne on axillary peduncles 2-6 cm. long, the bracts minute, membranous, ovate; calyx 5-6 mm. long, hirtellous, the tube campanulate, the teeth subulate, very acute, 3-4.5 mm. long, subequal; corolla slender, 11-15 mm. long, the banner exceeding the wings and keel; pods 5-6 mm. long, compressed obovate, hirtellous 1-seeded. (T. Aitoni Rydb.).

Frequent in grassy open places and meadows. Geyer 659 from Coeur d'Alene Mts. near St. Josephs is the type (Hook. Herb. at Kew).

6. T. repens L. White Clover. Stems 10-30 cm. long, creeping or reclining, glabrous; stipules membranous, lanceolate, about 1 cm. long; leaflets commonly 16-18 mm. long, obcordate or rhombic-orbicular, often notched, commonly whitish-blotched, finely toothed; heads borne on axillary peduncles 15-30 cm. in diameter, involucre none; calyx 5 mm. long, glabrous, the teeth 2 mm. long, unequal, very acute, tapering but little; corolla about 1 cm. long, the exserted portion of the banner twice the length of the wings and keel.

Frequent in waste places, along roadways and trails and in meadows; naturalized from Europe.

T. hybridum L. Alsike Clover. Similar to T. repens but the flowers pink and the stems tufted, erect, not stoloniferous; seeds ~~diagnostically~~ mottled with dark green or almost completely dark green. May be expected as an escape.

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4. Medicago (Tourn.) L.

Perennial herbs with more or less prostrate stems and trifoliolate leaves. Flowers in short axillary spike-like racemes. Calyx-lobes subequal. Stamens 10, the uppermost free, the remainder united. Pods more or less strongly spirally coiled, or curved, indehiscent.

1. M. lupulina L. Leaflets obovate, wedge-shaped below, 1 cm. long or less, toothed above the middle; racemes .5-1 cm. long on peduncles 1.5-2 cm. long; corolla 3 mm. long, yellow; pods 2.5-3 mm. long, strongly flattened, curved, veined, in compact cylindrical or ovoid clusters 1-1.5 cm. long.

In fields and waste places; naturalized from Europe.

5. Melilotus (Tourn.) Hill. Sweet Clover.

Sweet scented annual or perennial herbs with alternate trifoliolate leaves. Flowers in very slender axillary racemes. Calyx-lobes subequal. Stamens 10, the uppermost free, the remainder united. Pod short and thick, subglobose.

O Flowers white — 1. M. alba

O Flowers yellow — 2. M. officinalis-

1. M..alba Desv. Stems 1-3 m. tall; leaflets 1.5-2.5 cm. long, truncate at the apex; racemes 3-12 cm. long; corolla white, about 5 mm. long, fragrant; pods 3-4 mm. long, wrinkled.

Along roadsides and waste places; naturalized from Europe or escaped from cultivation.

2. M. officinalis (L.) Lam. Stems 1-3 m. tall; leaflets 1-2 cm. long, obovate to oblong, rounded or truncate at the apex; corolla yellow, about 5 mm. long; pods 3-4 mm. long, wrinkled. flowering

Naturalized from Europe; same habitats as M. alba, but somewhat earlier ~~blooming~~.

6. Lotus. (Tourn.) L.

Herbs with ~~alternate~~ odd-pinnate leaves, with or without foliaceous stipules. Flowers solitary in the axils or in few flowered axillary umbels. Calyx campanulate, 5-lobed, the lobes subequal. Corolla yellow or whitish, tinged with rose. Uppermost stamen free, the remaining 9 united around the ovary. Pods straight or curved, dehiscent.

O Flowers yellow, in umbels; perennials

2 Plant prostrate with trailing stems; foliage
6 pubescent; pods curved — 1. L. Douglasii

2 Plant erect; foliage glabrate; pods straight — 2. L. pinnatus

O Flowers white, tinged with rose; annuals — 3. L. americanus

1. L. Douglasii Greene. A prostrate perennial with numerous trailing stems from a stout central rootstock, 30-40 cm. long, pubescent with short appressed hairs; leaves 1.5-2 cm. long, the stipules gland-like, the rachis villous, the leaflets 5, alternate, shortly stipitate, obovate or elliptical, mostly acutish at both ends, 8-18 mm. long, both surfaces villous; umbels on slender peduncles which are mostly shorter than the leaves, the bractlet resembling a leaflet; calyx 5 mm. long, villous, the teeth and tube subequal, the former narrowly awl-shaped; corolla yellow, 8-9 mm. long, the wings longer than the keel; pod canescent, strongly recurved, about 1 cm. long, including the attenuate style; seeds 2-3, broadly reniform, 1.5 mm. wide. (Hosackia decumbens Benth.).

On gravelly plains in the grassland intrusions; hardly proper to our region. Sandberg 551 is "very near the type of Hosackia decumbens Benth." as studied at Kew, fide Jepson. Kootenai Co., Leiberg 55; Lake Coeur d' Alene, Sandberg 551; Chatcolet, Crozier; Granite Sta. Epling.

var. glaber (Nutt.) Ewan. Less robust, more decumbent, the herbage pilose to nearly glabrous. (Hosackia elata var. glabra Nutt.) — With the species.

2. L. pinnatus Hook. An erect branching perennial 30-40 cm. tall, glabrous; leaves 4-6 cm. long, the stipules membranaceous, ovate-lanceolate, 3-5 mm. long, the rachis 3-5 cm. long, leaflets 5-7 on stalks 1-1.5 mm. long, elliptical-oblong or narrowly obovate; umbels on axillary peduncles, these rather stout, 4-12 cm. long; calyx tubular, 7 mm. long, glabrate, the tube transparent, the teeth awl-shaped, 2-2.5 mm. long; corolla light yellow, the wings longer than the keel; pods linear, straight, 5 cm. long, 2 mm. in diameter. (Hosackia bicolor Dougl.).

Springy places, Kootenai Co., Leiberg 615" (corresponds well with the type of Lotus pinnatus Hook." as studied at Kew, fide Jepson); Little Potlatch R., Sandberg 402.

3. L. americanus (Nutt.) Bisch. A slender erect annual 10-50 cm. tall, widely branching, villous or pilose, slender; leaves 2-4 cm. long, trifoliolate, the stipules glandlike, inconspicuous, the rachis 3-8 mm. long, the leaflets shortly stalked, 10-30 mm. long, elliptical, acute, softly pilose, the lowermost leaflets closely pressed to the stem; peduncles axillary, slender, somewhat exceeding the leaves, flowers solitary, the bractlets resembling a small leaflet; calyx softly pilose, 4-6 mm. long, the teeth longer than the tube, narrowly lanceolate, curving, very acute; corolla white, veined with rose, 5-6 mm. long, the banner 5 mm. in diameter; pod linear, nearly straight, about 2.5 cm. long, 2 mm. wide, flattened, the style persistent.

Dry gravelly banks and roadsides, in or near the grassland. Post Falls, Heller 615; Kootenai Co., Sandberg; Granite Sta., Epling; Hope, Epling.

7. Glycyrrhiza (Tourn.) L. Wild Licorice.

Erect perennial herbs with thickened sweet roots and alternate odd-pinnate glandular-dotted leaves; stipules deciduous. Flowers in axillary spikes. Calyx 5-lobed, the upper two lobes shorter and partly united. Uppermost stamen free, the remaining 9 united, the alternate anthers smaller. Pod oval, sessile, armed with prickles, bur-like.

1. G. lepidota (Nutt.) Pursh. Stems 40-60 cm. tall, erect, glandular; leaves 10-25 cm. long, oblong in outline, the leaflets opposite in 7-9 pairs, 2.5-4 cm. long, 6-10 mm. wide, lanceolate, acute, on stalks about 1 mm. long, the leaf surfaces nearly glabrous and glandular, stipules 3-4 mm. long, narrowly triangular-lanceolate; racemes spicate, about 3 cm. long, the peduncles sparingly glandular-villous, bracts ovate-lanceolate, membranous; flowers sessile, calyx 6 mm. long, the lobes narrowly lanceolate, very acute, glandular, somewhat unequal; corolla yellowish, scarcely twice as long as the calyx, the ovary prickly; pods reflexed, indehiscent and bur-like, 1.5-2 cm. long, flattened, bearing the persistent style and densely covered with stout hooked bristles 3 mm. long; seeds brown, flattened, reniform, 2.5 mm. in diameter.

An occasional weedy plant in waste places in the north. Autumnal plants with naked stems and persistent brown burs suggest small-fruited Cockleburs. Sandpoint; Bonners Ferry; Clark Fork Valley, 2200 ft.

8. Hedysarum (Tourn.) L.

Erect perennial herbs from stout rootstocks with alternate odd- pinnate leaves. Flowers showy in axillary racemes, yellow or rose-purple. Calyx campanulate, 5-lobed, the lobes subequal. Keel of corolla obliquely truncate. Uppermost stamen free, the remaining 9 united. Pod very flat, reticulately veined, segmented transversely, the segments rounded, indehiscent.

- Corolla rose-purple; pod hirtellous — 1. H. occidentale
- Corolla sulphur-yellow; pod glabrous — 2. H. sulphurescens

1. H. occidentale Greene. Stems erect, 40-70 cm. tall, bearing several scales at the base; leaflets mostly opposite, 9-11 pairs, oval to oblong-lanceolate, 1.5-3 cm. long, obtuse, mucronate, both surfaces sparingly hirtellous, ~~the upper glabrous~~, the lower rather glossy, the veins prominent, borne on stalks about 1 mm. long, stipules lanceolate, 1-1.5 cm. long; raceme rather lax, 8-15 cm. long, bracts linear-subulate, 4-8 mm. long, pedicels slender, 3-4 mm. long; calyx hirtellous, the tube 3.5 mm. long, the teeth subequal, 2-3 mm. long, the lower longest; corolla rose-purple, 16-20 mm. long, the keel exceeding the banner and wings, abruptly bent at nearly a right angle; pod 3.5-4 cm. long, canescent in youth, at maturity hirtellous, the segments mostly oval, 12-15 mm. long, bearing a margin nearly 1 mm. wide, the reticulations mostly pentagonal, the stipe about equal to the calyx. (H. marginatum Greene fide Rollins).

Usually on moist herbaceous subalpine ledges, frequently lower in similar situations. Interesting for its discontinuous distribution between northern Idaho and the Olympic Peninsula. Ridges south from Weissners Peak, 6500 ft., Leiberg 1366; divide betw. St. Joe and Clearwater R., 5300 ft., Leiberg 1213; St. Joe Forest, 5950 ft., G. Lewis; Fish Lake, 6000ft., Epling and Houck 9806.

2. H. sulphurescens Rydb. Stems erect, commonly tufted, 20-40 cm. tall, finely hirtellous; leaflets 5-8 pairs, mostly opposite, usually ovate, less often oblong-lanceolate, obtuse and shortly mucronate or shallowly retuse, both surfaces glabrous, shining, the veins prominent, the stalks about 1 mm. long, stipules lanceolate, acute, 8-12 mm. long; raceme rather lax, 8-15 cm. long, bracts linear-subulate, 4-8 mm. long, pedicels slender, 3-4 mm. long; calyx hirtellous, the tube scarcely 2 mm. long, the teeth very unequal, the upper triangular-subulate, .5 mm. long, the lower 1.5 mm. long; corolla sulphur-yellow, 13-15 mm. long, the keel exceeding the banner and wings, abruptly bent at nearly a right angle, obtuse; pod 3.5-4 cm. long, very flat, glabrous, the segments mostly oval, 10-12 mm. long, bearing a margin .5-1 mm. wide, the reticulations mostly pentagonal, the stipe subequal to the calyx.

Open woods; ——————————→

l.c. South end of Lake Pend Oreille, Sandberg 748.

9.

Ours perennial

N. Astragalus (Tourn.) L.

herbs with alternate odd-pinnate leaves and persistent stipules. Flowers rose-purple, yellow or whitish, in close racemes or spikes. Calyx campanulate, 5-lobed, the lobes usually unequal. Corolla slender, the banner commonly exceeding the wings and keel, not markedly recurved; uppermost stamen free, the remaining 9 united into a tube around the ovary. Pod various, either flattened or plump or even inflated, 1-chambered or partly or wholly 2-chambered by the intrusion of one or both sutures.

0 Upper surface of leaflets glabrous, the lower hirsute
4 or hirtellous

2 Racemes borne upon peduncles 2-3 cm. long — 1. A. tenellus

2 Racemes borne upon peduncles 10-25 cm. long

4 Flowers purple; pods pendulous, flattened — 2. A. occidentali

4 Flowers yellow or whitish; pods ascending,
8 plump

6 Leaflets 3-5 mm. wide; flowers ascending;
10 stems numerous, ascending — 3. A. arrectus

6 Leaflets 6-12 mm. wide; flowers spreading;
10 stems few or solitary, erect — 4. A. Mortoni

0 Both surfaces of leaflets hirsute or hirtellous

pods

2 Calyx teeth longer than the tube; 5-6 mm. long,
6 densely white-woolly — 5. A. Spaldingii

2 Calyx teeth shorter than or subequal to the tube;
6 pods 10-15 cm. long, hirsute or hirtellous

4 Pods ascending, 12-14 mm. long; bracts 4-5
8 mm. long — 6. A. striatus

4 Pods spreading or pendulous, 9-10 mm. long;
8 bracts 2-3 mm. long

6 Pods inflated, pubescent with short curved
10 hairs; leaflets oval, 3-6 mm. wide — 7. A. microcysti

6 Pods flattened, not markedly inflated,
10 pubescent with stiff appressed hairs;
leaflets oblong-lanceolate, 1-2 mm. wide — 8. A. Bourgovii

1. A. tenellus Pursh. Stems 40-50 cm. tall, ascending, zigzag, nearly glabrous; leaves 4-7 cm. long, the stipules membranous, triangular, 2-3 mm. long, leaflets 1-2 cm. long, 2-3 mm. wide, narrowly oblong, obtuse at both ends, in 7-8 pairs, opposite or alternate; glabrous above, sparingly hirtellous beneath; axillary racemes 2-3 cm. long, the bracts ovate, 1 mm. long, persistent, calyx-tube 2 mm. long, thinly hirtellous, the teeth subulate, acute, subequal, 1.2-1.3 mm. long; corolla pale yellow, the banner 9 mm. long, the reflexed portion 5 mm. long, keel 5 mm. long, exceeded by the twigs; pods pendulous 12-14 mm. long, 3.5 mm. wide, elliptical, acute at both ends, transversely veined. (Homalobus dispar Nutt.; H. stipitatus Rydb.; Astragalus multiflorus Gray).

Open hillsides under yellow pine, Bonners Ferry, Epling 10433; West Kootenai, Lyall.

2. A. occidentalis M. E. Jones. Stems 40-50 cm. tall, several, slender, ascending, nearly glabrous, internodes 5-10 cm. long; leaves 5-8 cm. long, stipules ovate, 4-5 mm. long, leaflets in about 5 pairs, usually opposite, shortly stalked, oval, 15-20 mm. long, 4-8 mm. wide, obtuse at both ends, the apex notched, glabrous above, puberulent; flowers borne in the upper third of slender peduncles 15-25 cm. long, on slender pedicels 2-3 mm. long, subtended by membranous persistent bracts 1.5-2 mm. long; calyx-tube 3 mm. long, loosely hirtellous with black hair, the teeth subulate, 2-2.5 mm. long; corolla violet, purple-veined, fading whitish, the banner 10 mm. long, the reflexed portion 5 mm. long, the keel 7 mm. long, exceeded by the wings; pods pendulous 1.5-2 cm. long, 5-6 cm. broad, flattened, elliptical, acute at both ends, sparingly hirtellous.

Rocky ledge near the falls, Upper Priest R., Epling 7518.

3. A. arrectus Gray. Stems numerous, ascending, 40-50 cm. tall, from a branching rootstock, nearly glabrous, the middle internodes much elongated, 15-20 cm. long; stipules lanceolate, 4-5 mm. long, leaflets in 9-11 pairs, more or less opposite, 1.5-2 cm. long, 3-4 mm. wide, oblong-lanceolate, obtuse, rounded at the base, shortly stalked, the upper surface glabrous, the lower thinly appressed-pubescent; flowers few in crowded racemes on elongated axillary peduncles 20-25 cm. long, bracts narrowly lanceolate, 3 mm. long; calyx 4.5-5.5 mm. long, ovate, the teeth scarcely 1.5 mm. long, clothed with short mostly black hairs, pedicels about 1 mm. long; corolla 12 mm. long, pale yellow; pod erect, 15-25 mm. long, rigid, 4-4.5 mm. diameter, transversely rugulose. (A. palousensis Piper).

Near Julietta, Gail; on layers of stiff ferruginous clay banks of the Trapp Mt. declivities, upper Kooskooskee (Clearwater R.), Geyer 378, (type coll.); Moscow, Christ 319.

4. A. Mortoni Nutt. Stems 30-80 cm. tall, more or less zigzag, arising from a branching slender rootstock, puberulent throughout; leaves odd-pinnate, 10-15 cm. long, glabrous above, the leaflets in 7-11 pairs, mostly opposite, nearly sessile, 1.5-3 cm. long, oval to oblong, shallowly notched at the apex; stipules membranous, 1.5 cm. long, lanceolate, acuminate; spicate racemes axillary, 4-6 cm. long, 2.5-3 cm. wide, the peduncles 2-3 times as long, bracts scarious, lanceolate-acuminate, subequal to the calyx; calyx 7 mm. long, ovate-tubular, the mouth oblique, the lower teeth 2 mm. long, the upper 1.5 mm. long, shaggy pubescent with some of the hairs black; corolla sordid white with a greenish tinge, about twice the length of the calyx; ovary glabrous; pod ascending, plump, light brown, smooth, 1.5-2 cm. long, about 4 mm. in diameter, the persistent enlarged style 8-9 mm. long, recurved at the apex; seeds chocolate brown, flattened-reniform, 2.5 mm. in diameter.

Abundant in open woods, along roadways and in burns.

5. A. Spaldingii A. Gray. A low ashy softly villous perennial, the stems several, ascending from a branching rootstock, the internodes 3-6 cm. long, the stipules triangular-lanceolate, 4-6 mm. long; leaflets mostly 8-11 approximate pairs, 6-12 mm. long, 2.5-3.5 mm. wide, elliptical, subacute at both ends, widest near the middle; dense, ovate spikes on peduncles 5-10 cm. long; calyces white-woolly, the tube 3 mm. long, the acicular teeth 4-4.5 mm. long; banner 8-9 mm. long, the reflexed portion 6 mm. long, the keel 7 mm. long, exceeded by the wings; pods spreading, ovoid, white-woolly, 5-6 mm. long.

Moscow, Abrams 627. Type taken by Rev. Henry Spalding on plains of Kooskooskee R., now Clearwater R., at present Lapwai, Idaho.

6. A. striatus Nutt. A low ashy-green tufted perennial 15-25 cm. tall, the leaves erect, crowded on the much shorter scaly branches, stipules about 1 cm. long, membranous, lanceolate-acuminate, joined at the base, the blades 10-12 cm. long, silky-hirsute on both surfaces, the leaflets in 6-8 subopposite pairs, 1-2 cm. long, 2.5-4 cm. wide, oblong-lanceolate, acutish, narrowed at the base, nearly sessile; racemes ovoid and crowded on silky-hirsute peduncles 20-30 cm. long, more elongated in fruit, bracts linear-lanceolate, persistent, 4-5 cm. long; calyx-tube tubular-campanulate, 3 mm. long, hirsute with white hairs or a few black, the teeth subulate, 1.5-2 mm. long; corolla purple 13-14 mm. long, the banner scarcely reflexed, the keel 10 mm. long; pods ascending, 12-14 mm. long, plump, hirsute with white hairs. (A. adsurgens Hook.).

On a sandbar, Upper Priest R., 3000 ft., Epling 7584; Snowy Top Mt., d'Urbal.

7. A. microcystis A. Gray. A low ashy perennial 25-30 cm. tall with numerous ascending appressed-pubescent stems from a prostrate rootstock; leaves numerous, 5-6 cm. long, stipules narrowly lanceolate, 4-5 mm. long, leaflets mostly opposite, 5-7 pairs, obovate, 1-1.5 cm. long, shortly stalked, the upper surface glabrous, the lower shaggy-pubescent; racemes axillary, the bracts awl-shaped, 2 mm. long; calyx ovate, appressed-pubescent, 3 mm. long, the upper teeth 1 mm. long, the lower 1.5 mm. long, on pedicels about 2 mm. long; corolla rose-purple, 7 mm. long, the banner abruptly bent near the middle; pods spreading, inflated, about 1 cm. long, oval, 4-5 mm. in diameter, transversely wrinkled, pubescent with curved hairs, tipped by the slender, recurved style; seeds chocolate brown, flattened-reniform, 1.5 mm. in diameter. (Phaca microcystis Rydb.).

Sandy shore, Lake Pend Oreille, Sandberg, 816.

8. A. Bourgovii A. Gray. Stems ashy-green, numerous, slender, from a branching rootstock, the internodes 2-3 cm. long; leaves 3-5 cm. long, stipules triangular, 3-4 mm. long, membranous, leaflets 6-8 mm. long, 1-2 mm. wide, oblong-lanceolate, acute, narrowed at the base, rather silky-hirsute on both surfaces; racemes on slender axillary peduncles 8-10 cm. long, bracts lanceolate, 2 mm. long, persistent; calyx-tube 2.5-3 mm. long, hirtellous with black hairs, the teeth subulate, subequal, 2 mm. long; banner 8 mm. long, the abruptly reflexed portion 4 mm. long, keel 6 mm. long, the wings slightly longer; pod pendulous, about 10 mm. long, elliptical, flattened, hirsute with short white hairs.

Rocky ledge among Pinus albicaulis, 6800 ft., Epling and Houck 9582; summit Stevens Peak, 6400 ft., Leiberg 1470.

10. Vicia.L. Vetch.

Herbaceous vines with alternate usually conspicuous tendril-bearing leaves, the tendril sometimes reduced to a small appendage. Flowers in axillary racemes, or solitary. Calyx 5-lobed, the lobes unequal, the lower longer, the tube gibbous at the base. Stamens 10, the uppermost free, the lower nine united, style slender, bearing a tufted ring of hairs at the summit. Pod dehiscent by 2 valves.

o Flowers solitary or few, ~~and~~ axillary — 1. V. sativa

o Flowers in racemes

2 Racemes with 15-25 or more flowers — 2. V. cracca

2 Racemes with 5-12 flowers — 3. V. americana

1. V. sativa L. Stems slender, erect, 30-40 cm. tall or more; leaflets 6-12, oblong; flowers solitary or in pairs in the axils; corolla about 2 cm. long; pods 3.5 cm. long.

To be expected as an occasional weed; naturalized from Europe.

2. V. cracca L. Herbage grayish green and softly hirsute-villous; stems slender, 50-60 cm. long, reclining on herbage, stipules 3-4 mm. long, acute at both ends, entire; leaflets 11-15, 1-1.5 cm. long, oblong or elliptical-oblong, 3-4 mm. wide, mucronate at the tip, subsessile, the tendrils well developed; flowers 15-25 in axillary racemes 8-9 cm. long; calyx 6 mm. long, the tube 2.5-3 mm., the mouth oblique, teeth very unequal, acuminate, the lowermost 3 mm. long; corolla bluish-purple, 12-13 mm. long, the wings and banner subequal, exceeding the keel by about 5 mm.; pod very flat, oblong, 3 cm. long, 1 cm. wide, glabrous.

Near Moscow, along roadways, Epling and Houck 9150; naturalized from Europe.

3. V. americana Muhl. Herbage glabrous and green, the stems slender, angled but hardly winged, 1 m. long or more; leaves 10-12 cm. long, sessile, the stipules semi-orbicular, 8-12 mm. broad, deeply and sharply toothed, the leaflets mostly 10-16, oval to lanceolate, 2.5-4 cm. long, 8-15 mm. wide, subsessile, blunt or truncate at the apex, and bearing a short mucro, the tendrils well developed; flowers 5-12 in axillary racemes about equal to the leaves; calyx campanulate-tubular, sparingly pubescent, the mouth oblique, the teeth 1-2 mm. long, acute; corolla rose-purple, fading to blue, the banner 16-18 mm. long, reflexed, the wings somewhat shorter, oblong, exceeding the keel by 2 mm.; pods 2.5-3 cm. long, 5-6 mm. wide, plump when mature, not flattened, tapering at both ends, the valves twisting after opening; seeds globose, velvety black, 3 mm. in diameter. (V. oregana Nutt.).

Throughout our range in open places at low elevations.

var. truncata (Nutt.) Brewer. Similar, the leaflets narrowly lanceolate to elliptical, 3-8 mm. wide, or some even linear, 4-5 cm. long, 2-3 mm. wide, more or less truncate at the apex.

Clarkia, Epling and Offord 8259; Thatuna Hills, Epling and Houck 9192.

(11.)

X. Lathyrus (Tourn.) L. Wild Sweet Pea.

Herbaceous vines with alternate tendril-bearing leaves, the tendril often inconspicuous or reduced to a small appendage. Flowers in axillary racemes or solitary. Calyx 5-lobed, the lobes unequal, the lower longer, the tube gibbous at the base. Stamens 10, the uppermost free, the lower 9 united. Style hairy at the apex on the upper side only. Pods usually very flat, dehiscent by 2 valves.

0 Corolla yellowish or whitish; leaflets mostly 2-2.5 cm. b
4 broad, the tendril usually branching, 2-5 cm. long

2 Calyx teeth acuminate, mostly half as long as the tube — 1. L. Parkeri

2 Calyx teeth blunt, the lower subequal to the tube — 2. L. ochroleu

0 Corolla purple; leaflets 1-20 mm. broad, the tendril
4 reduced to a short herbaceous sometimes trifurcate tip

2 Herbage softly pubescent — 3. L. Nuttallii

2 Herbage glabrous or at most finely puberulent

4 Stems more or less erect, 60-70 cm. tall;
8 leaflets mostly obtuse — 4. L. pauciflor

4 Stems 15-25 cm. tall, more or less decumbent;
8 leaflets mostly acute, even linear

6 Leaflets 1-2 cm. broad; banner 20-25 mm. long — 5. L. nevadensi

6 Leaflets 4-12 mm. broad; banner 14-15 mm. long — 6. L. bijugatus

1. L. Parkeri St. John. Erect perennial herbs with slender trailing rootstocks, the stems commonly 30-60 cm. tall, sparingly hirtellous; leaves commonly with 4-5 pairs of leaflets, the rachis 8-15 cm. long, terminating in a slender simple or three-branched tendril 2-6 cm. long; leaflets approximately opposite, soft, subsessile, 3-6 cm. long, commonly 1.5-3 cm. broad, rarely as narrow as 1 cm., oval or elliptical, less often ovate, blunt at both ends, tipped with a short mucro, subglaucous beneath, wholly glabrous; stipules prevailingly lanceolate, 10-20 mm. broad, acute at both ends; racemes axillary, nearly glabrous, their peduncles 3-6 cm. long, bearing usually about 9-12 flowers on pedicels 3-4 mm. long; calyx tube campanulate, 3-4 mm. long, oblique, rounded at the base, the lower teeth 1.5-2 mm. long, the upper shorter, all acuminate, deltoid at the base; corolla creamy-white, fading to cream-color, the banner 11-12 mm. broad, 10-11 mm. long, sparingly veined with purple, the erect portion 5-8 mm. tall, wings somewhat undulate; mature pods not seen.

Frequent within the white pine type in the St. Joe and Clearwater forests in shady flats at lower elevations. C. S. Parker 511 from Grizzly Camp, Latah Co., is the type. Headquarters, Epling; Pierce, Epling; Forks of St. Maries R., Leiberg 1134.

2. L. ochroleucus Hook. Stems slender, as much as a meter long, glabrous, the internodes zigzag in the upper parts; stipules ovate to kidney-shaped, 1-2 cm. long, 6-12 mm. wide, mostly entire; rachis 10-15 cm. long, terminated by a very slender branching tendril; leaflets commonly 3 pairs, 2.5-6 cm. long, 2-2.5 cm. broad, oval or elliptical, tipped with a small mucro; flowers yellowish or white, 8-9 on axillary peduncles; calyx 9-10 mm. long, glabrous, the tube very oblique, 3 mm. long between the upper teeth, 5 mm. between the lower, the teeth membranous, ovate, the lower subequal to the tube in length, 1-2 mm. broad; banner 17 mm. long, obovate-cuneate, wings 14-15 mm. long, exceeding the keel by 3 mm.; pods chocolate-brown, 4 cm. long, 5 mm. wide, plump when mature; seeds globose, greyish, 3 mm. in diameter.

At the margins of woods or in open woods at low elevations.

3. L. Nuttallii Wats. → A low herb, softly pubescent (especially new growth) to nearly glabrous; stems about 30 cm. long, angled, the internodes 3-5 cm. long; stipules 2-lobed, the lobes lanceolate, acute, the smaller 1.5-3 mm. long, the larger 4-8 mm. long; leaflets 4-5, 18-25 mm. long, 8-12 mm. wide, mostly oval and rounded at both ends but bearing a minute mucro, subsessile, rachis [redacted] long, the tendril nearly wanting, 1-3 mm. long; flowers 3-4 on slender axillary peduncles 5-8 cm. long, pedicels slender, 2.5 mm. long; calyx 7 mm. long, the tube about 5 mm. long, the upper teeth triangular-acuminate, 1.5 mm. long, the lower narrowly lanceolate, about 2 mm. long; banner obovate, 12-13 mm. wide, 16-17 mm. long, the wings 15-16 mm. long, somewhat exceeding the keel; fruit not seen. → ~~(L. pubescens Nuttall mss.~~ (L. pedunculatus St.-John [redacted]).

1-3 cm.

Turner Cr., Lake Coeur d'Alene, 2500 ft., St. John 4281; Coeur d'Alene Mts., Geyer 312 partim.

4. L. pauciflorus Fernald. → Stems more or less erect, 60-70 cm. tall, 3 mm. in diameter, the internodes 5-8 cm. long, branching somewhat in the upper axils; stipules obliquely ovate, mostly entire, 1.5-2.5 cm. broad, the lobes shortly acuminate, somewhat clasping; rachis 10-12 cm. long, usually trifurcate into 3 slender, weak tendrils, leaflets 10-12, oval or elliptical, 2-3 cm. long, 1-1.5 cm. broad, mostly obtuse at both ends, the tip bearing a small mucro, borne on stalks scarcely 1 mm. long; flowers 3-4 on peduncles 6-8 cm. long, borne in the upper axils; pedicels 2-3 mm. long; calyx 7-8 mm. long, the tube about 3 mm. long, the mouth very oblique, the upper teeth 2 mm. long, triangular-acuminate, the lower 4-4.5 mm. long, 1.5 mm. wide, lanceolate; corolla purple, 16-19 mm. long, the banner nearly rotund, 15 mm. in diameter, narrowed to a claw 7-8 mm. long, the wings 18 mm. long, exceeding the keel by about 5 mm.; pods 4-4.5 cm. long, lightly distended, acute at both ends, 6-7 mm. wide, somewhat narrowed toward the base, glaucous; seeds purple, velvety, 3.5 mm. in diameter.

Carlin Bay, Lake Coeur d'Alene, St. John 4252; Harrison, Christ 699.

5. L. nevadensis S. Wats. → A glabrous herb with several slender decumbent stems 30-40 cm. long, supported by herbage, weakly branching, the internodes 3-5 cm. long, angled; stipules 2-lobed, the lobes lanceolate, acute, the smaller 1.5-3 mm. long, the larger 4-8 mm. long; leaflets 4-5, 3.5-5 cm. long, 1-2 cm. broad, elliptical, mostly acute at both ends, bearing a small mucro, borne on stalks scarcely 1 mm. long, the rachis 3-4 cm. long, terminated by a tendril 4-5 mm. long or a mere prickle; flowers rose-purple, 2-4 on slender axillary peduncles 4-6 cm. long, pedicels slender, 3 mm. long, calyx 5-6 mm. long, sparingly hirsute, the tube 4 mm. long, with an oblique mouth, the upper teeth triangular-acuminate, 1.5 mm. long, the lower narrowly lanceolate, about 2 mm. long; banner obovate, 1-1.6 cm. broad, 15-25 mm. long, the wings 16-17 mm. long, subequal to the keel; fruit not seen.

Carlin Bay, Lake Coeur d'Alene, St. John 4245; Julietta, Henderson 2739.

6. L. bijugatus White. Stems numerous, slender, 15-25 cm. long, angled, the internodes 2-3 cm. long; stipules 2-lobed, the smaller lobe 2 mm. long, the larger 5-8 mm. long or more, both very acute; rachis 1.5-3 cm. long, terminating in a weak prickle-like tendril 3-4 mm. long; leaflets commonly four, in two pairs, much exceeding the rachis, 3-4 cm. long, 4-12 mm. wide, acute, sessile; flowers rose-purple, 2-3 on axillary peduncles 2-3 cm. long; calyx 6 mm. long, the tube about 3 mm., the teeth 2-3 mm. long, the upper triangular-acuminate, the lower narrowly lanceolate; blade of the banner 15 mm. broad, 10 mm. long, narrowed abruptly to a claw about 3 mm. long, wings 12 mm. long, exceeding the rounded incurved keel by 3 mm. and attached to it by a small tooth near the middle; fruit not seen.

Rocky hillsides; Turner Cr., Lake Coeur d'Alene, St. John 4287; Coeur d'Alene Mts., Geyer 612 (partim); Moscow.

var. Sandbergii White. Leaflets linear, 1-3 mm. wide, as much as 8 cm. long, very acute. (L. Sandbergii Howell)

Moscow; Latah Co., Sandberg (type); Coeur d'Alene Mts., Geyer 612 (partim).

Crassulaceae. Stone-Crop Family.

Glabrous herbs with usually thickened fleshy leaves, without stipules. Flowers cymose, mostly perfect, regular. Flower parts in series of 5 (or 4), the stamens as many as or double the number of petals. Pistils superior, nearly or quite distinct. Fruit a cluster of follicles.

o Leaves alternate, not in basal rosettes; flowers
4 polygamous or dioecious, purple — 1. Rhodiola

o Leaves in a basal rosette; flowers perfect, yellow — 2. Sedum.

1. Rhodiola L. Roseroot.

Leaves alternate. Flowers small, ~~in terminal cymes~~ → polygamous or dioecious, 4- or 5-merous. Sepals distinct. Petals distinct, purple. ~~Follicles erect, the tips spreading.~~ →

1. R. rosea L. var. integrifolia (Raf.) Jeps. → Stems numerous from a branching, often elongated and stout scaly caudex, caespitose and tufted, 5-10 cm. long, sometimes pendulous and 15-30 cm. long, reddish; leaves obovate to cuneate-spatulate, 8-15 mm. long, 3-7 mm. wide, flat, obtuse, entire, loosely articulated at the base, the base slightly prolonged beyond the articulation; flowers in terminal corymbs, purple, pedicels 3 mm. long, calyx lobes subulate, 2.5 mm. long, obtuse; petals 4, oblanceolate, 3-4 mm. long; stamens subequal to the petals, the filaments purple, anthers yellow; follicles 3-4, erect, 4-5 mm. long, the tips spreading.

In rock crevices on high peaks and ridges above 6000 feet; throughout our region but infrequent. →

no ff → Snowy Top Mt., 7000 ft.; Fish Lake 6500-6800 ft.; Stevens Peak, 6250 ft.

→

2. Sedum L. Stonecrop.

Annual or perennial succulent herbs with alternate and basal leaves. Flowers showy in terminal cymes, perfect, 4-5-merous. Sepals distinct or lightly united. Petals distinct, yellow. Follicles distinct or united at the base, spreading or erect.

o Leaves linear, 1-2 cm. long

2 Leaves plump, obtuse, not scarious and expanded
6 at the base; flowers clear yellow; follicles erect at maturity — 1. S. stenopetalum

2 Leaves flattened, acute, scarious and expanded
6 at the base; flowers pale yellow; follicles rotate at maturity — 2. S. Douglasii

o Leaves ovate, 5-6 mm. long — 3. S. acre

1. S. stenopetalum Pursh. Perennials with short, fleshy rootstocks apparently propagating by offsets which form the flowering shoots of the following year; annual stems 10-20 cm. tall, branching, tufted; leaves about 1 cm. long, 2 mm. in diameter, pale green or reddish, terete or nearly so, plump and rounded, appearing mealy, obtuse, loosely articulated at the base, the margin prolonged beyond the articulation, those on the sterile shoots densely imbricated, forming globose clusters, those on the flowering shoots erect, soon withering and falling away; flowers clear orange-yellow, ~~numerous in terminal cymes, the branches ascending~~; sepals subulate, 2.5 mm. long; petals narrowly lanceolate, carinate, mucronate, spreading, 8-10 mm. long; stamens equal to the styles, erect; follicles 7 mm. long, erect in fruit, the styles spreading, 3 mm. long.

Infrequent in our region, apparently only alpine. → not

→ Fish Lake, 6500 ft.; seen at Revett Lake, 6000 ft.; Snowy Top Mt., 6000 ft.; ridges north from Carbon, 4500 ft.; Bearskull Mt., 6000 ft., Continental Mt.

2. S. Douglasii Hook. Perennials with creeping rootstocks, the annual stems erect, 10-20 cm. tall, glabrous, internodes shorter than the leaves; leaves fleshy, becoming scarious, widely spreading, bearing bulblets in the axils below the inflorescence, lanceolate, acute, 1-2 cm. long, loosely articulated, easily falling away, the margin extended beyond the articulation, the lowermost leaves in globose tufts, scarious and expanded and clasping at the base; flowers pale yellow, ~~several in a terminal cyme~~, sessile, the calyx lobes 2 mm. long, triangular-acuminate, the petals rotate, 7-8 mm. long, oblong-lanceolate, carinate, mucronate; stamens somewhat shorter than the petals, the follicles half their length, the styles 1.5 mm. long; mature follicles 3 mm. long, rotate-spreading, the suture lightly winged near the base.

Common throughout our region, 2500-6000 feet or more, in dry thin soil, on rock outcrops, in rock crevices, etc.

3. S. acre L. ——>Rootstocks trailing, scaly, the stems decumbent or ascending, 6-10 cm. long; leaves 5 mm. long, ovate, obtuse, light green, imbricated, prolonged below the articulation 1 mm. or more, scarious when dry; flowers several ~~in loose terminal cymes~~; sepals ovate, 1 mm. long, obtuse; petals 3.5-4 mm. long, ovate-lanceolate, acuminate, veined; follicles tardily spreading, 3-3.5 mm. long, styles 1 mm. long.

In sand near the Inn, Upper Priest Lake, Epling and Houck 10284; escaped from cultivation.

Saxifragaceae. Saxifrage Family.

Ours all low

~~Usually small~~ perennial herbs with alternate, rarely opposite, often basal leaves, ~~without stipules.~~ Flowers in racemes, panicles or cymes, infrequently solitary, usually small and white. Calyx-lobes and petals commonly 5. Stamens 5 or 10, hypogynous or perigynous. Pistil formed of 2-5 carpels, nearly distinct and superior or variously united and wholly inferior in some, in fruit forming ~~quite~~ or partly distinct follicles or capsules.

for 2-chambered, distinct

0 Stamens 5, alternating with 5 fringed staminodia;
4 capsule 1-chambered with 3-4 parietal placentae opposite the stigmas — 1. Parnassia

0 Stamens 5 or 10, staminodia none; capsule 1 or 2 (rarely 3) chambered, either with axial placentae
4 or 2 parietal placentae alternate with the stigmas (sometimes appearing basal)
(3 in Lithophragma)

2 Stamens 10

4 Maturing ovary and capsule quickly differentiating
8 into two very unequal valves, together somewhat slipper-shaped; leaves 5-7 lobed. — 2. Tiarella

4 Valves of capsule equal

6 Ovary 2-chambered or of two (rarely 3)
10 distinct carpels, the placentae axial in either case; petals entire or rarely toothed.

8 Ovary of two free carpels; leaves leathery;
12 seeds with an appendage at each end — 3. Leptarrhena

8 Ovary of two carpels united at least at the
12 base, free above; leaves not leathery; seeds without appendages — 4. Saxifraga

6 Ovary 1-chambered, the placentae parietal; petals palmately or
10 pinnately cleft or divided.
8 Leaves all basal, none borne on the
12 flowering stalk — 5. Mitella

8 Leaves both basal and cauline

10 Styles, placentae and valves 3; ~~petals white~~ — 6. Lithophragma

10 Styles, placentae and valves 2; ~~petals~~ — 7. Tellima

2 Stamens 5

4 Placentae axial

6 Tender plants 15-30 cm. tall, the rootstocks small,
10 bearing small bulblets

8 Flowers white, 15-20 or more; styles 2 8. Hemieva.

8 Flowers violaceous, 2-5, rarely more; style 1 9. Suksdorfia

6 Stout plants 60-90 cm. tall with stout
10 < elongated rootstocks; leaves commonly 10-20 cm. broad. 10. Boykinia

4 Placentae parietal or appearing basal

6 Petals palmately or pinnately divided into
10 { linear lobes, mostly longer than the sepals;
capsule appearing as a shallow cup when
open 5. Mitella

6 Petals entire, (mostly) shorter than the sepals, some-
10 { times wanting; capsule appearing as an
ovoid cup when open 11. Heuchera

lobed

1. Parnassia (Tourn.)L. Grass of Parnassus.

Glabrous, somewhat fleshy herbs, [redacted] from short rootstocks. Leaves basal, long petioled. Flowers solitary on slender scapes. Sepals and petals 5, the latter conspicuously veined. Stamens 5, alternate with glandular staminodia. Ovary superior or nearly so, with commonly four stigmas and as many placentae, forming a 1-[redacted] capsule, loculicidal towards the apex.
(chambered)

1. P. fimbriata Koenig. [redacted] herbs 30-50 cm. tall, [redacted], leaves numerous [redacted], the blades kidney-shaped, incurved, entire, commonly 2.5-4 cm. broad, on petioles 10-15 cm. long; scapes usually several, each bearing a cordate sessile leaf above the middle; sepals oblong, 4-5 mm. long, obtuse, membranous on the margin, united at the base to form a short hypanthium; petals oblong-obovate, 10-12 mm. long, veins about 7, margins conspicuously fringed below the middle; stamens about half the length of the petals, filaments dilated at the base, erect prior to anthesis then lying flat, staminodia palmately lobed, green, conspicuous; pistil ovate, superior, the stigmas sessile, placentae usually 4; capsule subglobose, about 9 mm. long.

Particularly along mossy subalpine streams and in subalpine meadows but ranging throughout our region from 3000-6500 feet or more.

2. Tiarella L. [redacted]

[redacted] Leaves basal and on the stems, the former long-petioled, stipules present. Flowers numerous, small, white, in a terminal panicle or raceme. Calyx 5-lobed, campanulate. Petals 5, linear-subulate in our species. Stamens 10, exserted, the filaments filiform. Ovary superior, 2-lobed, terminating in filiform styles. Capsule 2-valved, the valves very unequal, the longer boat-like, the two forming a slipper-like structure.

1. T. unifoliata Hook. ——→Rootstock slender, basal leaves several, ovate-rotund to reniform-rotund, 4-8 cm. in diameter, deeply cordate, the sinus open and rounded, shallowly 5-7 lobed, the lobes triangular, commonly acute, crenate-dentate, the teeth rounded and cuspidate, both surfaces sparingly covered with short, erect hairs, the petioles 2-3 times the length of the blades, more or less glabrous, the cauline leaves conforming, short petioled, commonly 2-3; panicles 15-20 cm. long or more, glandular, the lateral branches commonly 1-2 cm. long, ~~subtended by 1-3 pedical leaves~~, few-flowered, bracts wanting; flowers white, nodding; calyx 2.5 mm. long, puberulent, the lobes ovate, equal to the tube, on pedicels twice as long; petals linear-subulate, about twice or thrice as long as the sepals; stamens and styles about 4 mm. long, ~~exserted~~, conspicuous; lower valve of capsule frequently 1 cm.long, tipped by the persistent style, the upper half as long or less; seeds 1.2 mm. long, black, shining.

Abundant in shaded woods throughout our region, 2000-6500 feet.

3. Leptarrhena R. Br.

[redacted] Leaves chiefly basal, alternate, leathery. Flowers in a cymose panicle. Calyx campanulate, the lobes erect. Petals 5, white, persistent. Stamens 10, filaments subulate. Ovary superior or nearly so, deeply 2-lobed, the carpels nearly distinct. Fruit formed of two follicles joined at the base. Testa elongated into tail-like appendages longer than the seed proper.

1. L. pyrolifolia (D. Don) R. Br. → Rhizome slender, scaly, often branching, leaves crowded near the apex, the blades 3-6 cm. long, oval, crenate-serrate, entire toward the base and narrowed into a short expanded clasping petiole, upper surface green and glossy, rugose, glabrous, lower surface pale, often reddish; flowering stem scapiform, glandular, rather stout, [redacted] with 1-2 sessile bractlike leaves, inflorescence dense in flower, 1-2 cm. long, elongated and open in fruit; calyx scarcely 2 mm. long, campanulate, the lobes ovate, obtuse, somewhat longer than the tube; petals lanceolate-oblong, 1 mm. long; stamens shortly exserted, the filaments stout; ovary included; fruit ovoid, 7 mm. long, [redacted] spreading at the apex; seeds, with appendages, 4-5 mm. long.

Subalpine meadows and sphagnum bogs; infrequent but abundant locally.

not → Upper Priest R., 5000 ft., ~~Epling 6013~~; Lion Creek, 5000 ft., ~~Epling and Houck 10221.~~ →

or purple,

4. Saxifraga (Tourn.) L. Saxifrage.

Perennial herbs, the leaves in our species either small and densely imbricated, or in a basal tuft. Flowers white, in cymose panicles, these frequently dense. Calyx lobes 5, [redacted] Petals 5, deciduous. Stamens 10, the filaments subulate or clavate. Ovary nearly or quite superior, 2 [redacted] chambered, forming a 2 (or 3) valved capsule, the lobes frequently nearly distinct, thus forming 2 follicles.

0 Leaves 1-1.5 cm. long or less, 1-5 mm. broad,
4 numerous, imbricated on the stems

2 Leaves opposite — 1. S. oppositifolia

2 Leaves alternate

4 Leaves oblong-linear — 2. S. bronchialis

4 Leaves trident-shaped — 3. S. caespitosa

0 Leaves basal, commonly 2 cm. or more long or
4 broad

2 Leaves entire or at most with small callouses
6 along the margin, rarely somewhat denticulate — 4. S. integrifolia

2 Leaves dentate

4 Leaves cuneate-oblanceolate, glandular-hirsute — 5. S. ferruginea

4 Leaves ovate to reniform-orbicular, glabrous
8 at least above

6 Leaves reniform-orbicular, not narrowed
10 at the base

8 Leaves singly dentate — 6. S. arguta

8 Leaves doubly dentate — 7. S. Mertensiana

6 Leaves ovate

9 Leaves nearly glabrous beneath — 8. S. [redacted] Marshallii

3 Leaves densely rusty-tomentose beneath — 9. S. rufidula

1. S. oppositifolia L. ⟶ Low caespitose pulvinate perennial with much branched slender, leafy stems; leaves opposite in four ranks, densely imbricated, 2-3 mm. long, obovate to spatulate, glabrous, keeled, the margins ciliate; flowers solitary, erect on short peduncles, purple; calyx campanulate, 5-6 mm. long, the lobes about equal to the tube, blunt, ciliate; petals elliptic or oval, 8-9 mm. long, narrowed at the base; stamens about half the length of the petals, the styles subequal, slender, nearly distinct, the ovary about half inferior. (Antiphylla oppositifolia Fourr.).

An alpine species found only on the highest peaks in our region; rare.⟶

not ⟶ Snowy Top Mt., 7000 ft., Anderson.

var. austromontana (Wiegand) Piper.

2. S. bronchialis L. Low tufted perennial with much branched leafy stems; leaves alternate, rather fleshy, densely imbricated, reflexed in age, 8-12 mm. long, 1.5-2 mm. wide, lightly keeled, acute, spine-tipped, the margins rigid-ciliate; flowering stems erect, 5-15 cm. tall, sparingly glandular, bearing several remote reduced leaves [redacted]; cymes several-flowered, 3-4 cm. long; calyx lobes free to the base, ovate or ovate-lanceolate, acute, 1.5-2.5 mm. long, glabrous; petals 4.5-5 mm. long, oblanceolate-oblong, blunt, white, yellow and purple dotted, 3-veined; stamens somewhat shorter than the petals, the filaments narrowly subulate; ovary superior, the carpels united about 2/3 their length, the tips spreading, capsule ovoid, about 6 mm. long; seeds, smooth, about 1 mm. long. (S. austromontana Wieg.; Leptasea austromontana Small).

Frequent throughout our region, chiefly above 5000 feet but ranging as low as 3000 feet, on moist ledges, frequently pendent.

3. S. caespitosa L. Densely tufted, mat-forming perennial; leaves imbricated, 5-10 mm. long, trident-shaped, the lobes 2.5-3 mm. long, 1 mm. wide, subacute, the midvein in each prominent, more or less villous, especially on the margins; flowering stems 5-8 cm. tall, slender, the bracts 3-lobed or toothed or the uppermost entire; flowers 3-7 in open cymes, on pedicels 10-15 mm. long; sepals erect, 2-2.5 mm. long, oblong-lanceolate, obtuse, glandular; petals obovate, 4-5 mm. long; stamens subequal to the sepals, the filaments subulate; pistil inferior, the hypanthium obconical at anthesis, the styles slender, shorter than the stamens; capsule 4.5 mm. long, urceolate, the carpels joined almost their full length, the styles divaricate; seeds oval, spinulose.

Abundant on moist rock ledges, St. Joe R., 2500 ft., Epling and Putnam 10508. J. K. Small has separated our plants as Muscaria monticola (N. Am. Fl. 22: 130) upon minor differences in sepals and hypanthium.

4. S. integrifolia Hook. Rootstock short, globose; leaves 3-30 cm. long, 1-6 cm. broad, elliptical-oblong or oblanceolate, obtuse or less often acute, narrowed at the base, the petiole hardly distinct, both surfaces nearly glabrous, or the lower or both hirsute, the margins entire or remotely callous-denticulate; scape 30-40 cm. tall, stout, glandular-pubescent throughout, the bracts linear; cymes strict, varying greatly in density, 30 cm. long, the lower on erect glandular peduncles commonly 1-5 cm. long, the upper ~~often~~ often subsessile, pedicels 4-8 mm. long, glandular; calyx-lobes ovate, obtuse, about 1.5-2 mm. long, 3-veined, soon reflexed; petals oval, 3-veined but the midvein prominent, 3-4 mm. long, spreading, sometimes wanting; stamens half the length of the petals or subequal, with yellow anthers; ovary about half inferior in flower, the lobes distinct, nearly superior in fruit, the lobes widely divergent; seeds spindle-shaped, 1 mm. long, brown, with longitudinal rows of papillae. (S. oregana Howell; S. columbiana Piper; S. subapetala E. Nels.; Micranthes arnoglossa Small).

J

Are met in boreal ground of meadows at elevations to 7[illegible] feet; a species of [illegible] variability even in a single community. Saxifraga oregana is possibly to be maintained as a species apart from integrifolia.

S. plantaginea Small Leaves erect, 3-12 cm. long, the blades oblong, oval or rhombic, entire to finely toothed, narrowed by a cuneate base to a petiole shorter than the blade; scapes stout, 20-35 cm. tall, peduncles of contracted cymes exceeding the bracts, elongated; petals obovate, 1.5-2 mm. long. (ex char.).—To be expected in our region.

5. S. ferruginea Grah. ——→ Leaves tufted at the apex of a short rootstock, oblanceolate-cuneate, 2-6 cm. long, dentate-serrate, the teeth spreading, pubescent, narrowed gradually toward the base [illegible] petiole; flowers numerous in an ovate open glandular panicle, the lower bracts foliar, the upper much reduced, linear; branchlets of the second, third or fourth order bearing conspicuous globose bulblets; calyx lobes 1.5-2 mm. long, quickly reflexed and remaining so, ovate-lanceolate, obtuse; petals white with a pair of yellow dots near the base, 3 mm. long, narrowly elliptical, narrowed to a short claw, acute; stamens shorter than the petals, the filaments filiform, the anthers coral-red; ovary superior, the carpels united 1/2 2/3 their length; capsule 5 mm. long, the seeds about .7 mm. long, spinulose along the back. (Spatularia Brunoniana Small.).

Saxifraga Bongardi Presl;

Frequent, locally abundant on rock outcrops in thin soil, 3000-6000 feet, throughout our region.

6. S. arguta D. Don. Rootstock rather slender, scaly; leaves orbicular-reniform, 3-6 cm. in diameter, the sinus broad, glabrous, coarsely crenate-toothed, the teeth broadly ovate, cuspidate, 3-4 mm. tall, equal, not doubly toothed, on petioles 3-4 times as long; flowering stems 30-50 cm. tall, slender, glandular above, secondary branches slender, bracts 3-6 mm. long, subulate to linear, panicles 15-20 cm. long, diffuse; calyx-lobes 1.5 mm. long, quickly reflexed, ovate, increasing somewhat in fruit and then oblong; petals white with two yellow dots near the base, orbicular, shortly clawed, 2-3 mm. long, quite variable on the same plant; stamens 3 mm. long, anthers orange-red, filaments clavate; ovary superior, the lobes 1/2-2/3 their length; capsule 7-9 mm. long, oblong, splitting in the upper third, the lobes spreading, seeds about .8 mm. long. (S. punctata of Am. auth.; Micranthes arguta Small).

Frequent in rock crevices in moist places, 5000-7000 feet, throughout our region.

S. Lyallii Engler. Leaves erect or ascending, 1.5-6.5 cm. long, the blades flabellate to suborbicular or reniform-flabellate, cuneate at base, coarsely few-toothed above, glabrous or nearly so, narrowed to a petiole nearly as long as the blade; scapes branched above, the inflorescence thus open, as in S. arguta, the flower stalks commonly purple; sepals ovate, 1.5-3 mm. long, glabrous, reflexed; petals white, with 2 submedian blotches, short-clawed; follicles commonly 3-5 together. — Floral characters suggest fairly recent hybrid origin, esp. in aberrant carpels (Macigalupi). To be expected in northern Idaho.

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7. S. Mertensiana -ong. Rootstock stout, subglobose; leaves 2.5-6 cm. in diameter, orbicular or reniform, the sinus open, glabrous, doubly crenate-dentate, the principal teeth 5-10 mm. long, commonly 3-dentate in well developed specimens, rarely entire, hardly cuspidate; petioles 4-12 cm. long; flowering stems 15-30 cm. tall, glabrous or glandular, commonly with a small bract near the middle; panicles 5-15 cm. long, open, the branchlets slender, some usually bearing bulblets, bracts small, subulate; calyx-lobes 1.5-2.5 mm. long, oblong-lanceolate, reflexed; petals 2.5-3 mm. long, oval; stamens subequal to the petals, filaments slightly clavate, anthers red; ovary superior, the lobes free about half their length; capsule 5 mm. long, ovate; seeds .5 mm. long. (Heterisia Mertensiana Small; S. heterantha Look.).

Frequent in rock crevices in moist places, 3000-6000 feet throughout our region. Bulblets are frequently formed instead of secondary flowers.

8. S. Marshallii Greene Rootstock short, the leaves ovate or ovate, 1-3 cm. long, serrate-dentate, the teeth 1-2 mm. tall, upper surface green and glabrous, the lower purplish, nearly glabrous, narrowed to a broad petiole 1-2 cm. long, the margins usually woolly; flowering stems 15-25 cm. tall, glandular-pubescent, dense or open panicle 2-15 cm. long, the pedicels 5-15 mm. long in fruit; sepals ovate, 1.5-2 mm. long, obtuse, reflexed; petals suborbicular, white, commonly with two yellow dots near the base, 2.5 mm. long, narrowed at the base but sessile or nearly so; filaments clavate, subequal to the petals; pistils 2 (-3), superior, nearly or quite free in fruit and spreading, 2.5-3 mm. long.

Frequent, moist places, to 6000 feet.

9. S. rufidula (Small) Piper. Rootstock short, the leaves in a basal rosette, the blades oval or ovate, 1-3 cm. long, serrate-dentate, the teeth 1-2 mm. tall, the upper surface green and glabrous, the lower purplish, densely rusty tomentose, narrowed to a broad petiole 1-2 cm. long; flowering stems 15-25 cm. tall, glandular-pubescent, open panicle 10-15 cm. long, the pedicels 5-15 mm. long; sepals ovate, 1.5-2 mm. long, obtuse, reflexed; petals elliptical, white, 2.5-3 mm. long, suborbicular; filaments clavate, long or two-thirds the petals; ovaries [illegible] mm. long.

5. Mitella L. Mitrewort.

Cap.

~~Perennial~~ herbs from scaly rootstocks, frequently propagating by stolons. Leaves mostly basal, long-petioled, rotund in outline and deeply cordate. Flowers small, white or greenish, in slender racemes. Calyx campanulate or saucer-shaped, forming a tube in the lower half which is more or less adnate to the ovary. Stamens 10 or 5, the filaments very short. Ovary ovate-conical, either superior or inferior, with 2 nearly basal placentae, and 2 styles, occasionally 2-lobed. Capsule 2-valved, campanulate when open, exposing the seed-clusters.

0 Petals palmately 3-lobed or -parted above the middle (rarely entire)

2 Midvein of the sepals branching near the base;
6 segments of the petals (or the petal if entire) lanceolate — 1. M. trifida

2 Midvein of the sepals, simple; segments of the
6 petals linear or threadlike — 2. M. stauropetala

0 Petals pinnately laciniate, the divisions 5-13,
4 threadlike

2 Stem leaves present; ovary half inferior; styles
6 unbranched; stamens 5, alternate with the petals; flowering from the apex down — 3. M. caulescens

2 Stem leaves not present; flowering from the base upward

4 Ovary superior; styles unbranched; stamens 10 — 4. M. nuda

4 Ovary wholly inferior or nearly so; styles 2-lobed;
8 stamens 5

6 Stamens alternate with the petals — 5. M. Breweri

6 Stamens opposite the petals — 6. M. pentandra

1. M. trifida Grah. Leaves all basal, the blades ~~reniform~~ 3-6 cm. ~~diameter~~ wide, glabrous or sparsely hispid, the lower surface paler, not lobed or obscurely so, coarsely and shallowly crenate, ~~deeply pinnately lobed at the base~~, the sinus narrow, on slender hirsute petioles twice as long; flowering stems 20-basal cm. tall, finely glandular; calyx 2 mm. long in flower, white, campanulate, the lobes ovate, obtuse, apiculate, shorter than the tube; petals white, twice the length of the sepals or less, cuneate in outline, palmately 3-lobed above the middle, flat, not threadlike; stamens 5, alternate with the petals; ovary almost half inferior, becoming campanulate in fruit, 5 mm. wide, the pedicel 3-4 mm. long; seeds black, 1 mm. long. (Ozomelis trifida Rydb.).

Occasional in the northern part of our region, along small streams, 2[illegible] 5000 feet. Upper Priest R., 4000 ft.; Priest R. Exp. Sta. 5000 ft.

2. M. stauropetala Piper. Stoloniferous, the leaves all basal, the blades 3-6 cm. (even 10 cm.) wide, some frequently glabrous, others hirsute, the lower surface paler, not lobed or obscurely so, crenate, on slender retrorsely hirsute petioles twice as long; flowering stems 30-40 cm. tall, glandular-puberulent; calyx white, tinged with lavender, the tube 2 mm. long, campanulate, the lobes ovate, obtuse, shorter than the tube; petals 3.5 mm. long, violet, becoming white, about twice the length of the sepals, palmately 3-parted above the middle, the segments filiform, even; stamens 5, sagittate after anthesis, anthers blue, opposite the sepals; ovary about half inferior, the styles 2-lobed, reddish; capsule 4 mm. wide, the pedicels about 2 mm. long; seeds scarcely 1 mm. long, black. (Ozomelis stauropetala Rydb.).

Common throughout the southern part of our region, 2500-6500 feet, on cliffs, ledges, along moist trails, even in burns. The var. stenopetala (Piper) Rosend., recognized by the linear unbranched petals, may occur.

3. M. caulescens Nutt. Stoloniferous, the leaves basal and cauline, blades rotund in outline, 3-6 cm. in diameter, commonly five-lobed, the lobes triangular-ovate, coarsely crenate, deeply cordate, the sinus narrow, both surfaces hirsute, on hirsute petioles 1-2 times as long, the stem leaves smaller, the uppermost subsessile; racemes 10-15 cm. long, glandular, flowering from the apex downward; calyx 2 mm. long in flower, the lobes subequal to the tube, triangular, subacute; petals twice the length of the sepals, greenish, purple at the base, pinnately laciniate, the divisions 11-13, filiform, sometimes forked; stamens 5, alternate with the petals, the filaments purple; ovary about half inferior, broadly campanulate in fruit, included within the calyx, the pedicels slender, 4-5 mm. long, deflexed; seeds brown, smooth, scarcely 1 mm. long. (Mitellastra caulescens [Nutt.]).

[illegible] feet, along moist

4. M. nuda L. Stoloniferous, the leaves all basal, blades rotund in outline 2-4 cm. broad, obscurely or not at all lobed, coarsely crenate, both surfaces sparingly hirsute or nearly glabrous, the lower paler, deeply cordate at the base, on hirsute petioles about twice as long; flowering stems 10-15 cm. long, rarely with a single cauline leaf, glandular, the bracts wanting or minute; calyx 3 mm. long in flower, the lobes about equal to the tube, ovate, obtuse; petals about twice the length of the sepals or more, pinnately laciniate, the divisions 11-13, filiform, sometimes forked; stamens 10, seated on a disc; ovary superior, shallowly campanulate in fruit, exceeding the calyx, on erect pedicels 4-6 mm. long; seeds 1.2 mm. long, black and shining.

Known to occur in northeastern Washington near our boundary. ——→

no H ——→ West Kootenai, Lyall.

5. M. Breweri Gray. ——→ Leaves all basal, their blades kidney-shaped or rotund in outline, 4-8 cm. in diameter, shallowly 7-lobed, the lobes obscurely twice crenate-dentate, both surfaces subglabrous, deeply cordate [redacted], the sinus broad, on hirsute petioles twice as long; flowering stems 15-50 cm. long, glandular, the bracts minute; calyx about 1.5 mm. long in flower, the lobes about half the length of the tube, broadly triangular, acute; petals about thrice the length of the sepals, green or yellowish, pinnately laciniate, the divisions 5-7, filiform; stamens 5, alternate with the petals, yellow; ovary inferior, the styles 2-lobed, shallowly campanulate in fruit, subequal to the calyx, much exceeded by the seed clusters, the pedicels filiform, 4-6 mm. long; seeds brownish-black, scarcely 1 mm. long. (Pectianthia Breweri Rydb.).

Throughout our region but infrequent, occurring mostly above 4000 feet in shaded moist woods and along subalpine streams.

6. M. pentandra Hook. ——→ Rootstocks matted, the leaves all basal, blades ovate-rotund in outline, 3-5 cm. broad, obscurely 5-7 lobed, crenate-dentate, both surfaces sparingly hirsute or subglabrous, deeply cordate ~~at the base~~, the sinus open, on petioles about twice as long; flowering stems 10-40 cm. long, glandular, often hirsute, the bracts minute; calyx 1.2 mm. long in flower, the lobes about half the length of the tube, broadly triangular, recurved, subacute; petals about thrice the length of the sepals, greenish yellow, pinnately laciniate, the divisions commonly 7-9, filiform; stamens 5, opposite the petals; ovary inferior or nearly so, the styles 2-lobed, shallowly campanulate in fruit, subequal to the calyx, much exceeded by the seed clusters, the pedicels filiform, erect, 4-6 mm. long; seeds brownish-black, smooth, scarcely more than .5 mm. long. (Pectianthia pentandra Rydb.).

Frequent throughout our region, 2500-5000 feet, along shaded moist streams.

no H ——→ Fish Lake Cr., 5000 ft., ~~Suksdorf and Hosek 978~~; Upper Priest River, 3000-4000 ft., ~~Suksdorf 8770, 7308, 7366, 7316, 7661, 8326~~

6. Lithophragma Nutt. Woodland Star.

Perennial herbs from tuberous rootstocks often bearing small bulblets. Leaves chiefly basal, those with small stipules, the cauline usually alternate. Flowers in slender racemes. Calyx campanulate to obconic, the lobes free only at the apex. Petals 5, palmately divided in our species. Stamens 10, included. Ovary 1-chambered, with 3 placentae and 3 styles, half inferior to nearly superior. Fruit a 3-valved capsule.

0 Fruiting calyx with a rounded base, about as broad as long,
4 the free portion of the ovary as long as or longer than
the adnate portion
2 Stipules none-fimbriate, the free portion triangular
6 or rounded; stem-leaves lacking axillary bulblets 1. L. glabra
2 Stipules fimbriate, the free portion rounded; stem-leaves
6 with axillary bulblets 2. L. bulbifera

0 Fruiting calyx with an inverted cone-shaped base, longer
4 than broad, the free portion of the ovary shorter than the
adnate portion 3. L. parviflora

1. L. glabra Nutt. Herbs 10-30 cm. tall; basal leaves several, the blades rotund, 1-1.5 cm. broad, 3-5-lobed nearly to the base, the lobes again lobed or toothed, the principal segments more or less cuneate, nearly glabrous or glandular hispidulous, often reddish beneath, on petioles 2-3 times the length of the blade, those with non-fimbriate stipules; cauline leaves 1-2, smaller and nearly sessile, even wanting; racemes 2-5 cm. long, glandular, the bracts minute, toothed; calyx campanulate, glandular, 3 mm. long, the lobes obtuse, 5 mm. long, on slender pedicels 1-5 mm. long; petals spreading, inserted in the sinuses, white or pinkish, nearly twice as long as the calyx, [illegible]-lobed, the lobes acute; stamens scarcely more than 1 mm. long; styles somewhat shorter than the calyx, conical; capsule about 5 mm. long, seeds minute, muriculate.

Priest L. Co., Cha., coll. mihi.

2. L. bulbifera Rydb. Herbs 10-30 cm. tall; blades of basal leaves ternately divided nearly to base, the divisions again 3-cleft and the lobes often toothed, glandular- uberulent, the stipules pinkish, membranous, fimbriate, the stem-leaves smaller, short-petioled; flowers 3-6, sometimes replaced by bulblets; calyx campanulate, 3-4 mm. long; petals white or roseate, 4-7 mm. long, 3-5-cleft.

Dry hills, a southern species to be expected along our southern borders. The bulblets borne in the axils of the cauline leaves represent a type of vegetative reproduction.

3. L. parviflora (Pursh) Nutt. Herbs 15-30 cm. tall; basal leaves several, the blades rotund, 1.5-2 cm. broad, 3-5-lobed nearly to the base, the lobes again lobed and toothed, the principal segments more or less cuneate, both surfaces hirsute, on petioles 2-3 times the length of the blade, these with membranous stipules, cauline leaves 2-3, smaller and short petioled; raceme 5-8 cm. long, glandular, the bracts minute, toothed; calyx obconical, glandular, 5 mm. long, the lobes rather acute, 1 mm. long, on slender pedicels 3-5 mm. long; petals spreading, white or pinkish, twice the length of the calyx, palmately 5-lobed, the lobes obtuse; stamens scarcely 1 mm. long, these and the petals inserted below the sinuses; ovary half the length of the calyx, conical, nearly inferior; capsule 6-7 mm. long, seeds minute, glabrous.

On dry gravelly hillsides below 4000 feet; infrequent. Gold Hill; [illegible]. Mt. Sta., [illegible] Mt.; Santa Rosa; Post Falls.

7. Tellima R. Br.

Cap. [redacted] herbs from rather stout scaly rootstocks. Leaves chiefly basal with small stipules, the cauline alternate. Flowers in an elongated narrow raceme. Calyx campanulate, 10-veined, the lobes free only at the apex. Petals 5, pinnately laciniate, narrowed at the base, inserted in the simuses. Stamens 10, included, inserted near the sinuses. Ovary 1-chambered with 2 placentae and styles, nearly superior. Fruit a 2-valved capsule.

1. T. grandiflora (Pursh) Dougl. Fringe-cups. [redacted] herbs Ca 80-100 cm. tall, basal leaves several to numerous, the blades 5-10 cm. broad, subrotund, deeply cordate at the base, shallowly 5-7 lobed, serrate-crenate, both surfaces hirsute, the lower paler, on hirsute petioles 2-3 times as long, these with membranous stipules at the base, cauline leaves 2-4, conforming but smaller, short-petioled or subsessile; raceme 20-30 cm. long, glandular, bracts minute; calyx urceolate, 5-10 mm. long, glandular-hispidulous, the lobes 2-3 mm. long, obtuse, on pedicels 1-3 mm. long; petals pinkish, spreading, then reflexed, pinnate, the divisions about 5 [redacted]; stamens 1.5 mm. long; ovary subequal to the calyx tube, conical, capsule 10 mm. long, opening between the valves, about half-inferior; seeds numerous, 1 mm. long.

In moist, shaded, mature forest in stream bottoms, apparently only in the northern part of our region. Upper Priest R., 3000 ft.; Hughes Fk. 4,000 ft.

8. Hemieva Raf.

Cop. [redacted] herbs with short bulblet-bearing rootstocks and fibrous roots. Leaves basal and cauline, the latter with more or less apparent stipules. Flowers in a corymbose panicle. Calyx campanulate, sepals 5. Petals 5, short-clawed, white. Stamens 5, alternate with the petals, inserted on the margin of a disc. Ovary [redacted] 2-chambered. Placentae axial. Styles 2.

1. H. ranunculifolia (Hook.) Raf. Stems leafy, erect, 15-30 cm. tall; [redacted]; basal leaves 2-3, the blades reniform, the sinus open, deeply 3-lobed, the lobes again crenately toothed, both surfaces glabrous but glandular, the petioles twice or thrice as long, cauline leaves [redacted] passing into the oblong-lanceolate bracts; [redacted] short panicle, this sometimes dense and subglobose, or in vigorous plants several-branched, 8-10 cm. long, glandular; calyx turbinate-campanulate, glandular, 3 mm. long, the lobes spreading, ovate, subacute, about equal to the tube; petals oval or obovate, [redacted] 3-4 mm. long, spreading; stamens included, erect; styles distinct; ovary almost wholly inferior; capsule 4.5-5 mm. long. →(Saxifraga ranunculifolia Hook.).

Apparently general in its distribution but rare.→

→North Fork, Coeur d'Alene R., ~~Leiberg 615~~; St. Joe R., ~~Pugh~~; Upper Priest R., 6000 ft., ~~d'Urbe~~; divide between the St. Joe and Clearwater R's., 1550 m., ~~Leiberg 122~~; Hope. ~~Sandberg and Leiberg.~~→

9. Suksdorfia Gray.

Cop. [redacted] herbs with a short bulblet-bearing rootstock and fibrous roots. Leaves basal and cauline, the latter with stipules. Flowers in a small panicle. Calyx campanulate or urn-shaped, sepals 5. Petals 5, long-clawed, purple or rose color. Stamens 5, alternate with the petals; disc none; anthers subsessile. Ovary 2/3 inferior or more, 2-chambered. Placentae axial. Style 1.

1. S. violacea Gray. →Slender plants, 15-20 cm. tall, the basal leaves few, blades reniform in outline, 1-1.5 cm. broad, coarsely crenately dentate, the teeth 7-9, glabrous, on petioles 2-5 times as long, cauline leaves more or less flabelliform, sessile or nearly so, 3-5 toothed or the upper subentire; [redacted] cymose, glandular panicle, bracts none; calyx 5-6 mm. long in flower, the lobes lanceolate, very acute, subequal to the tube, the tube glandular, enlarged in fruit; petals 2-3 times as long as the sepals, narrowly oblanceolate, purple, inserted in the throat; [redacted] styles scarcely exceeding the tube; capsule 6-7 mm. long, oval, included within the persistent calyx, opening only at the apex; seeds minute, glabrous.

Wet shady ravines; rare.→

→Rocky soil, lower slopes Snowy Top Mt., ~~Warren 362~~; Wiessner's Peak, 1350 m., ~~Leiberg 1645~~; Snowy Top Mt., 5000 ft., ~~Epling 7269~~→

10. Boykinia Nutt.

Perennial herbs with scaly rootstocks. Leaves basal and cauline, long-petioled with stipules. Flowers showy, in a cymose panicle. Calyx campanulate or turbinate, sepals 5. Petals 5, white, short-clawed. Stamens 5, alternate with the petals. Ovary about 2/3 inferior, 2-chambered, with two styles. Placentae axial. Capsule 2-valved.

1. B. major Gray. ——→Perennial herbs with rather stout, elongate rootstocks; leaves chiefly basal on reddish-villous, glandular petioles 8-20 cm. long, the blades reniform, 6-20 cm. broad, the sinus broad, palmately 7-lobed to the middle, the lobes cuneate-incised and sharply toothed at the apex, upper surface glabrous, the lower paler, glandular-villous along the veins, the cauline leaves similar, reduced upwards, on shortened petioles or sessile and clasping, the stipules often foliaceous; ~~flowers numerous and showy in a branching~~ glandular panicle 10-25 cm. long, bracts lanceolate to linear; calyx shallowly campanulate or urceolate, 5-6 mm. long, glandular, the lobes spreading, lanceolate, acute or acuminate, exceeding the tube; petals oval or obovate, 6-8 mm. long, shortly clawed; stamens included, seated on a yellow disc; styles free; ovary almost wholly inferior.→(Therofon majus Wheelock).

tr.

Abundant along the margins of streams in the St. Joe and Clearwater drainages, 2500-5500 feet; not seen elsewhere.

11. Heuchera L. Alum Root.

Herbs ~~Perennials~~ with stout, scaly rootstocks. Leaves basal, long-petioled, stipules present. Flowers in a panicle which may be dense and spike-like. Calyx cylindric to campanulate, joined to the lower half of the ovary. Petals white, 5, very small, inserted in the throat, entire, often wanting. Stamens 5, alternate with the petals. Ovary partly inferior, ~~2-celled~~ 1-chambered, with 2 placentae; styles 2, distinct. Fruit a 2-valved capsule, included within the persistent calyx in our species.

0 Flowers on pedicels 5-15 mm. long, arranged in a graceful diffuse panicle with widely spreading branches; petioles hirsute with long, usually reflexed hairs — 1. H. micrantha

0 Flowers on pedicels 1-3 mm. long, arranged in narrow crowded or cylindrical panicles with ascending branches; petioles glandular or glabrous, infrequently thinly hirsute with spreading hairs

2 Branches of the panicles 1-2 cm. long; stems and petioles glabrous — 2. H. Houckii

2 Branches of the panicles 1 cm. long or less, or if more, the stems and petioles glandular hirsute

4 Capsules 5 mm. long; bracts scarcely .5 mm. wide, nearly entire, subulate; leaves tending to be broader than long — 3. H. grossulariaefolia

4 Capsules 7-10 mm. long; bracts lanceolate, mostly 1 mm. wide or more, glandular laciniate; leaves tending to be longer than broad

6 Calyx at anthesis 4-5 mm. long; capsules 7-8 mm. long; stems and petioles nearly or quite glabrous — 4. H. glabella

6 Calyx at anthesis 6-7 mm. long; stems and usually petioles glandular and more or less hirsute with spreading hairs — 5. H. cylindrica

1. H. micrantha Dougl. Plants 50-60 cm. tall, the rootstocks 3-4 mm. in diameter, petioles of basal leaves 6-18 cm. long, retrorsely hirsute, blades orbicular, thin, 4-8 cm. in diameter, deeply cordate, shallowly lobed, sharply toothed, the teeth acuminate, 1.5-2 mm. tall, both surfaces glabrate; cauline leaves none, the lower bracts leaflike, laciniate, the upper scarious, subulate; panicle slender 30-40 cm. long, shortly glandular, the branches filiform, pedicels 5-15 mm. long, filiform; calyx hirtellous, obconic, scarcely 2 mm. long, the lobes obtuse; petals narrowly spatulate on a very slender claw 2.5-3 mm. long, acute; styles free to the base; capsule elongate, much exceeding the calyx.

Dry rocky alpine situations, mountain slopes along Kooskooskoe (Clearwater) R., Geyer 566.

2. H. Houckii sp. nov. Rootstocks reddish, the leaves numerous, tufted, the blades rotund to oval, commonly 5-7 cm. long, on glabrous petioles 2-3 times as long or longer, cordate, the sinus more or less closed, mostly 5-lobed, the lobes rounded, somewhat narrowed at the base, shallowly crenate-dentate, the teeth cuspidate, both surfaces glabrous; flowering stems sparingly glandular-hispidulous, 50-90 cm. tall, paniculate, the lateral branches 1-2 cm. long, each bearing several flowers; bracts linear-acicular, 3-6 mm. long, not glandular pectinate; calyx cylindric-campanulate, 5-6 mm. long, glandular-pubescent, the sepals 2 mm. long, ovate-oblong, yellowish obtuse, pedicels 1-2 mm. long; petals 2 mm. long, spatulate, acute; ovary 2/3 inferior or more, the hypanthium obconical at anthesis; stamens 1 mm. long, the anther and filament subequal; capsule 7-10 mm. long, included in the persistent calyx which is adnate for 1.5-4 mm.; seeds .7 mm. long, longitudinally ribbed, the ribs sinulose, dark-brown.

Rocky outcrops and dry thin soil in burns. This is an apparent recent natural hybrid between L. glabella and grossulariaefolia as suggested by the annotation of Rosendahl, Butters and Lakela. Valley of the N. Fk. Coeur d' Alene R., 3000 ft., Leiberg 1541; N. Fk. Clearwater R., 3000 ft., Epling & Houck 9425 (type).

Glidden Pass, 5000 ft.,
Bitterroot Range, Sweam 18429

3. H. grossulariaefolia Rydb. Rootstocks reddish, the leaves numerous, tufted, the blades rotund-reniform prevailingly broader than long, commonly 2-4 cm. in diameter, cordate with a broad sinus, 5-lobed, some nearly to the middle, the lobes shallowly crenate-dentate, the teeth cuspidate, both surfaces glabrous, petioles 2-3 times as long or longer; flowering stems 30-50 cm. tall, glandular-hispidulous, the inflorescence 8-10 cm. long, narrowly racemose, bracts linear-acicular, scarcely .5 mm. broad, commonly subentire, shorter than the calyces, pedicels 1-3 mm. long; calyx urceolate-campanulate, 4-5 mm. long, yellowish, the lobes equal to the tube, ovate-oblong, glandular; petals spatulate, 1-2 mm. long; stamens reddish, orange or yellow, 1 mm. long; ovary 2/3 inferior, the hypanthium obconical at anthesis; capsule 5 mm. long, included within the persistent calyx; seeds dark brown, .6-.7 mm. long, longitudinally ribbed, the ribs spinulose.

In thin soil on rocky slopes at high elevations.

4. H. glabella E. & G. Rootstocks reddish, sometimes branched, the leaves numerous, tufted, the blades ovate-rotund, commonly 3-4 cm. long; slightly cordate, the sinuses usually open, 5-lobed, the lobes shallow, rounded, somewhat narrowed at the base, shallowly crenate-dentate, the teeth cuspidate, both surfaces glabrous, on glabrous petioles 3-4 times as long; flowering stems 30-40 cm. tall, sparingly glandular-hispidulous, inflorescence 4-10 cm. long, dense-spicate, bracts shorter than the calyx, lanceolate, glandular-pectinate; calyx cylindric-campanulate, 4-5 mm. long, glandular, increasing to 6-7 mm. the sepals erect, yellowish or tinged with red, mostly oblong, obtuse, 2.5 mm. long in flower, the hypanthium obconical, acute at the base in flower, rounded in fruit; pedicels 1-2 mm. long; petals spatulate, 1 mm. long, or wanting; stamens 1.5 mm. long, yellow; ovary half inferior; capsule 7-8 mm. long, included within the persistent calyx; seeds dark brown, .7-.8 mm. long, longitudinally ribbed, the ribs spinulose.

In deep moist soil, [illegible] deep.

5. H. cylindrica Dougl. Rootstocks 1-1.5 cm. in diameter, the leaves numerous in a basal tuft, the blades mostly ovate, commonly 4-7 cm. long, 4-6 cm. broad, cordate at the base, rounded at the apex, 5-7-lobed, the sinuses narrow but rounded, again broadly crenate-dentate, the teeth rounded-truncate, mucronate, glabrous on both surfaces or glandular-puberulent on the veins beneath, borne on puberulent or even hirsute petioles 12-15 cm. long; flowering stems 40-60 cm. tall, glandular with short spreading stiffish hairs, the interrupted spicate inflorescence 10-15 cm. long, the branches sometimes 1-1.5 cm. long; each cluster and flower subtended by a laciniate membranous glandular bract 2-7 mm. long; pedicels 1-2 mm. long, glandular; calyx 6-7 mm. long at anthesis, glandular, the tube funnel-form, green, the lobes whitish, mostly 3-3.5 mm. long, ovate, obtuse; petals mostly wanting; stamens yellow, appearing sessile before withering, on filaments scarcely 1 mm. long; styles free, scarcely 1 mm. long; capsule 10-12 mm. long, the withered sepals connivent over the valves; seeds spinulose, .9-1 mm. long.

In dry soil usually at lower elevations, commonly in association with Pinus ponderosa or P. contorta. This and the next species have been variously interpreted by botanists, Wheelock considering them but a single species, while Bacigalupi believes H. cylindrica here includes H. ovalifolia Nutt. in part. We cannot satisfactorily dispose of this problem now, suffice to say a third element does appear among our collections, though none were considered to be ovalifolia by Rosendahl and associates.

Droseraceae. Sundew Family

Low, mostly glandular herbs found in bogs. Leaves curled in the bud. Flowers perfect, regular, in slender rasemes or spikes, withering-persistent. Sepals and petals 5-8. Stamens usually 5; anthers attached by the middle. Ovary superior, 1-chambered, the styles and stigmas twice as many as the parietal placentae. Fruit a 1-chambered capsule. Seeds numerous.

Drosera L. Sundew

Low, perennial herbs with basal leaves. Flowers small, the petals white or pink, oblanceolate. Styles 2-5, distinct. Capsule 2-5 valved.

- o Blades orbicular, 6-10 mm. in diameter — 1. D. rotundifolia
- o Blades spatulate, 12-15 x 3-4 mm. — 2. D. longifolia

1. D. rotundifolia L. Round-leaved sundew. Low Plants 10-30 cm. tall, the leaves in a rosette, the blades about 1 cm. in diameter or less, subrotund, narrowed to a slender petiole 3-5 times as long, margins and upper surface fringed with reddish glandular-viscid hairs 2-5 mm. long;scape glabrous, the flowers few, erect, in a narrow raceme,subsecund; sepals oblong, 3-3.5 mm. long, petals somewhat longer, persistent; capsule oval, 4-5 mm. long, seeds .3 mm. long, plump, the testa 3 to 4 times as long, fuscous, scarcely inflated.

Occasional in sphagnum bogs. Priest Lake, Piper 3738; Epling 7804.

2. D. longifolia L. Narrow-leaved sundew. Low plants 10-20 cm. tall, the leaves in a rosette, the blades spatulate 12-15 mm. x 3-4 mm., attenuate to a slender petiole 3-5 times as long, the margins and upper surface fringed with reddish glandular-viscid hairs 2-5 mm. long; scape glabrous, the flowers few, erect in a narrow raceme,subsecund, about as in the last species; seeds .5 mm. long, plump, the testa 3-4 times as long, black, inflated.

Occasional in sphagnum bogs, Priest Lake, Piper 3740.

Hydrangeaceae. Hydrangea Family.

Shrubs or trees with opposite, simple leaves without stipules. Flowers perfect, often showy. Sepals 4-10. Petals 4-10, stamens perigynous, 5-many. Pistil 1, ~~of 2-5 or rarely 10~~ 2 united carpels, inferior. Fruit a capsule, usually opening at the top. (half-)

Philadelphus L. ~~Mock Orange.~~

Erect deciduous shrubs with flowers in terminal racemes or panicles. Sepals 4 or 5, valvate in the bud, persistent. Petals 4 (or 5), white. Stamens numerous, filaments subulate. Ovary more than half inferior, 4- chambered, forming a rather woody loculicidal capsule. =/

1. P. Lewisii Pursh. Syringa. Shrub 1-4 m. tall, the stems erect, or drooping, bark fuscous, soon checking and shredding longitudinally, new growth soon light brown; leaves 5-8 cm. long, ~~smaller in plants of arid habitat,~~ elliptical or ovate or even subrotund, obtuse (rarely acute) at the base, acute or, more commonly, acuminate at the apex, veins commonly 3 (sometimes 5) from or near the base, glabrous or one or both surfaces sparingly pubescent with curved appressed hairs, margins subentire or shallowly and irregularly denticulate; flowers white, ~~showy~~ in terminal racemes 3-5 cm. long, the lowermost bracts leaflike, the upper reduced and deciduous; calyx 8-9 mm. long, the sepals ovate, acuminate, somewhat longer than the tube, pubescent on the inside near the margin; petals oval or elliptical or frequently obovate, 12-15 mm. long, spreading; stamens about 1/3 as long as the petals, erect, exceeding the styles which are united 1/3-2/3 their length; capsule ovoid, 8-10 mm. long, enclosed within the erect or sometimes reflexed persistent sepals, splitting septicidally, dehiscing loculicidally at maturity; seeds brown, shining, 2.5 mm. long, lanceolate, curved, the testa forming an unequal wing. (P. columbianus Koehne; P. Helleri Rydb.)

Common throughout our region in dry situations below 4000 feet, in burns, along roadways, rock ledges etc; flowers with parts in fives frequently occur; commonly fragrant, frequently odorless, however.

Grossulariaceae. Gooseberry Family.

Armed or unarmed shrubs with alternate, palmately lobed leaves which are plicate or convolute in the bud; stipules adnate to the petiole or wanting. Flowers perfect, regular, in racemes, rarely solitary. Sepals 4-5, subvalvate. Petals 4-5, smaller than the sepals. Stamens 4-5, alternate with the petals. Calyx-tube adnate to the inferior ovary which is 1-chambered with 2 parietal placentae. Styles 2. Fruit a berry.

Ribes L. Currants and Gooseberries.

Characters of the family.

Mature leaves distinctly hairy on one or both surfaces
  Branchlets glabrous or essentially so
    Lower surface of leaves sprinkled with golden resin dots — 1. R. petiolare
    Lower surface of leaves not sprinkled with golden resin dots — 2. R. inerme
  Branchlets pubescent
    Spines present at the nodes, the canes usually bristly — 3. R. irriguum
    Spines wanting; canes smooth
      Leaves 3-7 cm. broad — 4. R. viscosissimum
      Leaves 1.5-3 cm. broad — 5. R. cereum

Mature leaves not hairy or minutely so on the veins beneath
  Branchlets pubescent
    Leaves cordate at the base
      Branchlets sprinkled with golden resin dots — 6. R. acerifolium
      Branchlets not sprinkled with golden resin dots — 7. R. laxiflorum
    Leaves rounded-cuneate to truncate at the base, not cordate — 8. R. aureum

Branchlets glabrous
- Leaves rounded or wedge-shaped at the base, mostly 3-lobed — 9. R. niveum
- Leaves cordate at the base, mostly 5-lobed
  - Flowers and fruits 2-4 in each cluster — 2. R. inerme
  - Flowers and fruits 6-12 or more in each cluster
    - Ovaries and fruit bearing conspicuous stalked glands; berries black; buds bisecting the angles, stems usually prickly — 10. R. lacustre
    - Ovaries and fruit smooth; berries bright red; buds pressed to the stems, stems always smooth — 11. R. triste

1. R. petiolare Dougl. Wild Black Currant. A dense shrub about 1 m. tall, stoloniferous, the stems decumbent or reclining, bark fuscous or chestnut-brown, longitudinally striate and flaking lightly or smooth, ultimate branches erect or ascending, stiffish, more or less canelike, entirely smooth, bark grey, the new growth becoming old straw-color in late summer, sparsely glandular with sessile glands; buds green, oblong, sub-acute, scale margins ciliolate, the tips glandular; leaves 5-14 cm. broad, mostly about 10 cm., cordate at the base, the sinus open, the lobes rounded, 5-lobed, the lowermost obscure, the lateral rather widely divergent, all ovate, rather obtuse, upper surface dull green, the lower sparingly villous and bearing golden sessile glands; petioles 1-1½ times as long as the blades, slender, crispulous, glandular-dotted, sometimes reddish, substipular at the base and slightly decurrent, the margins with a few branching hairs 2-3 mm. long; racemes ascending, 8-15 cm. long or more, many flowered, the bracts ovate, linear or subulate, crispulous, deciduous, 2-4 mm. long, pedicels 3-5 mm. long; calyx campanulate, the tube about 1 mm. long, the ovary broadly obconical, glandular, the lobes oblong, white, crispulous on the back; petals white, obcuneate or subflabelliform, 1.5 mm. long; stamens 1.5 mm. long, the filaments narrowly subulate; styles joined to the middle or more; berry black, 7-9 mm. in diameter, with a dull lustre, beset with golden glands; seeds ovoid, 1.5 mm. long.

Frequent throughout our region excepting in the Kootenai and Priest river drainages, 2500-4000 feet, rarely as high as 5500 feet, found chiefly along the margins of streams in the more open valleys and meadows, where it frequently forms dense mats and tangles, the stems submerged at high water; abundant locally. It may readily be recognized by the pungent and characteristic odor of the crushed foliage, similar to that of the black currant of commerce.

2. R. inerme Rydb. White Stemmed Gooseberry. A more or less diffuse shrub 1-2 m. tall, the branches drooping, rooting readily wherever in contact with moist soil, often trailing over vegetation and windfall, sometimes for many feet, or climbing into the lower parts of small trees or tree like shrubs; bark chestnut brown, rather shining, marked by transverse lenticels, often shredding, young bark dull grey, the new growth becoming pale straw color, rarely brown, glabrous, spines few or none, the canes sometimes bristly; buds 3 mm. long, straw colored or tan, lanceolate, laterally flattened and appressed against the stems, very acute, the scales puberulent, the margins ciliolate, not glandular, the terminal bud scarcely larger, leaf blades 2-6 cm. in diameter, mostly rotund in outline, 5-lobed, the lowermost obscure, the upper cut to the middle or more, obovate, cuneate, incised and toothed above the middle, the teeth ovate, apiculate, generally cordate at the base, the sinus broad, the lobes rounded, both surfaces glabrous with hirtellous veins and margins, or thinly hirsute on both surfaces, especially the lower, petioles mostly shorter than the blades, crispulous on the upper surface, bearing a few plumose, non-glandular hairs on the margins of the expanded base; racemes drooping, borne on lateral fruiting spurs, 2-4 flowered, glabrous, the bracts 1-2 mm. long, rotund-ovate, the margins ciliolate, pedicels 2-10 mm. long; calyx tubular, glabrous, greenish-white or purplish, the tube 2.5 mm. long, constricted at the base, the lobes erect, 3 mm. long, 1 mm. wide, obtuse, oblong; petals fan-shaped, 1.2 mm. long; stamens equal to the sepals, hairy at the base; styles united slightly more than half their length, pilose at the middle, equalling the sepals; berry smooth, purplish black, not glandular, 8-12 mm. in diameter, bearing a very light bloom; seeds ovoid, 2.5 mm. long.

Frequent throughout our region, abundant locally, occurring under willows and alders in broad alluvial stream bottoms or swampy meadows, below 4000 feet.

3. R. irriguum Dougl. A more or less straggling shrub, even diffuse, the branches 1-2 m. tall, drooping, infrequently rooting when touching the ground; bark chestnut-brown, rather shining, marked by transverse lenticels, often shredding, young bark dull grey, the new growth becoming pale straw colored, rarely brown, densely crisp-pubescent, frequently with longer woolly hairs, obscurely glandular, the nodal spines stout, 1-3, seldom wanting, the canes more or less bristly; buds 3 mm. long, lanceolate, very acute, usually terete and bisecting the angle, sometimes flattened and appressed, the scales puberulent, the margins ciliolate, not glandular, the terminal bud scarcely larger; leaf blades 2-6 cm. in diameter, rotund or rotund-reniform in outline, 5-lobed, the lowermost obscure, the upper cut to the middle or more, obovate, cuneate, incised and toothed above the middle, the teeth ovate, apiculate, cordate at the base, the sinus broad, or truncate, both surfaces softly pubescent, the lower velvety and obscurely glandular with small stalked glands; petioles about equal to the blades, villous, bearing stalked glands and plumose hairs on the expanded base; racemes drooping, borne on lateral fruiting spurs, 1-3 flowered, glandular and woolly, the bracts 1-2 mm. long, rotund-ovate glandular and woolly; pedicels 2-5 mm. long; calyx tubular, glabrous or sparingly hispid, greenish-white or purplish, the tube 3-3.5 mm. long, somewhat constricted at the base, hairy within, the lobes soon reflexed, oval or obovate, 3-5 mm. long; petals obovate, subequal to the tube; stamens equalling the sepals, inserted at the apex of the tube, hairy at the base; styles united about half their length, pilose at the middle, equalling the sepals; berry smooth, reddish-purple, not glandular, 6-12 mm. in diameter, bearing a very light bloom; seeds ovoid, 2.5 mm. long.

Frequent in our region except in the Priest River and Clearwater River drainages, usually below 3000 feet, occurring mostly in the open, along rocky river banks, on cliffs or in dry Douglas fir-larch forests at low altitudes.

4. R. viscosissimum Pursh. Sticky Currant. Erect shrub 1-2 m. tall, the stems several or numerous from a woody crown, decumbent or ascending; bark grey, roughened by numerous lenticels, the new growth green, glandular with stalked glands, finely crispulous, becoming light brown, splitting or flaking away the second or third year; buds 6-7 mm. long, ovoid, green, puberulent and viscid; leaves usually with a peppery aromatic odor when crushed, petioles subequal to or shorter than the blades, crispulous and beset with stalked glands, dilated and membranous at the base, substipular, the margins bearing a few plumose hairs; blades reniform or rotund, commonly 5-7 cm. broad, cordate or sometimes truncate at the base, the sinus broad, 5-lobed, the lowermost obscure, all obtuse or rounded, both surfaces, pubescent and glandular with stalked glands, usually sticky, the margin commonly doubly crenate-serrate; racemes spreading glandular, mostly 5-9 flowered, the bracts 8-9 mm. long, obovate or cuneate, toothed, glandular and hairy, pedicels 5-10 mm. long; ovary densely glandular-hispid, the calyx greenish-white, tinged with purple, bell-shaped, 7-12 mm. long, the lobes 2.5-3 mm. long, spreading, then erect and connivent; petals white, erect, orbicular or kidney-shaped 2.5-3 mm. in diameter; stamens seated within the calyx tube, 3 mm. long; fruit oblong-oval, 8-15 mm. long, greenish with 10 green veins, becoming deep blue-black at maturity, glandular and hairy, the persistent perianth nearly as long, conspicuous; seeds ovoid 2-3 mm. long.

Abundant throughout our region from 2500-5500 feet or more in dry open slopes, particularly in burns, in which it may be one of the first shrubby entrants, the seedlings appearing sometimes in abundance the summer following a fire. Type collection made by Lewis on Lolo Trail of Bitterroot Mts.

5. R. cereum Dougl. Squaw Currant. An erect, compact, much branched shrub of grayish aspect, the branchlets divaricate; bark mahogany-colored or cherry-like, smooth, with a dull lustre; the new growth brown, closely puberulent; leaves reniform 1-3 cm. broad, truncate to cordate at the base, shallowly scarcely lobed in some forms, shallowly 3-5-lobed in others, the lower lobes scarcely evident, the margin crenulate-dentate, the teeth 1-1.5 mm. tall, scurfy or puberulent and glandular with sessile or shortly stalked glands on both surfaces, sometimes sticky, petioles 5-12 mm. long, puberulent and glandular, somewhat expanded at the very base; buds 3-4 mm. long, ovoid, the scales membraneous-chaffy, puberulent and more or less viscid; racemes drooping, 3-4 flowered, the peduncle glandular; bracts cuneate-obovate, toothed at the apex, subfoliar, 4-5 mm. long; calyx sessile or nearly so, the tube 8 mm. long, 3 mm. wide, even the lobes 1.5 mm. long, rounded, soon reflexed; petals 1 mm. long, kidney-shaped, stamens 1.5 mm. long, inserted above the middle of the tube, the filaments and anthers subequal; style barely exserted from the tube, finely puberulous, very obscurely two-lobed at the apex; berries red, 6-8 mm. in diameter, smooth or glandular, the perianth persistent; seeds ovoid, brown, 2.5 mm. long.

Scarcely proper to our region, occurring in dry rocky places in Latah and Kootenai Counties. Paradise Hills, Abrams 842; Fernan Lake, Christ 1462.

Maple leaved Currant.

6. R. acerifolium Howell. Stems decumbent, often trailing for several feet, bark reddish gray or mahogany color, smooth, shining, marked by transverse checks in age; branchlets white, turning brown, minutely puberulent, sprinkled with golden, sessile glands; petioles about as long as the blades, puberulent, reddish, well expanded at the base, the margins membranous in some and substipular, usually bearing stalked glands 2-3 mm. long, the hairs plumose; blades orbicular-reniform in outline, 3-6 cm. in diameter, 5-lobed, the lower lobes obscure, the upper divergent, all ovate, obtuse or acute, the base truncate or cordate with an open sinus, the margin doubly dentate-serrate, the teeth ovate, obtuse, 1-2 mm. long; the veins impressed, prominent beneath, subparallel, giving a characteristic appearance to the leaf, upper surface somewhat shining, the lower puberulent on the veins, sprinkled with conspicuous, sessile, glands; buds green, 3-5 mm. long, ovoid, obtuse, appressed, inconspicuous, the terminal larger; racemes drooping, 7-15 flowered, pubescent and glandular with short-stalked glands, the bracts oblong, 3-6 mm. long, membranous; pedicels 2-5 mm. long; calyx campanulate, the ovary globose, constricted at the apex, pubescent and bearing stalked glands, the tube 1 mm. long, the lobes oval, veiny, 2.5 mm. long, finely woolly, greenish; stamens scarcely 2 mm. long, the filaments subulate; petals rose-colored, obovate-spatulate, 1-1.2 mm. long; styles 2 mm. long, united 2/3 their length; fruit globose, 5-6 mm. in diameter, erect by reason of the recurved pedicels, black with a heavy bloom, thus appearing blue, bearing a few stalked glands; seeds ovoid, flattened, 3 mm. long. (R. Howellii Greene).

Lion Head Mt., in the drainages of Lion and Two Mouth creeks, 4500-5500 feet, growing there along the margins of the streams, associated with Ribes lacustre, Menziesia glabella and Rhodendron albiflorum, abundant locally. One specimen was found in the valley of the upper Priest River, at an elevation of about 2800 feet.

7. R. laxiflorum Pursh. Sprawling, with prostrate stems, the branches ascending, 30-50 cm. tall, mature bark olivaceous, smooth, branchlets green or reddish, minutely crisp-hairy; buds ovate, obtuse, bisecting the angles, 3-5 mm. long, the terminal twice as large, all conspicuous, the scales red or green, obtuse, glabrous, the margins ciliolate; petioles 4-8 cm. long, often reddish, glabrous or sparingly glandular, expanded at the base, the margins often membranous, frequently forming stipules 2-3 mm. long, obtuse, the margins bearing glandular hairs 2-3 mm. long; blades reniform, 4-8 cm. in diameter, deeply cordate at the base, 5-lobed, the lower lobes rounded, all lobes obtuse, the middle divergent, margin crenately serrate, the teeth obtuse, apiculate, 1-3 mm. tall, ciliolate, upper surface green and glabrous, dull, lower surface paler, minutely and sparingly crisp-puberulent, obscurely glandular with sessile glands under a lens, the veins prominent, bearing small stalked glands; racemes erect, 5-9-flowered, crispulous and glandular with red, stalked glands, bracts lanceolate, 2-5 mm. long, glandular; the calyx tube thickened, shallowly cup shaped, 2.5-3 mm. in diameter, bearing stalked glands, the lobes thin, 2.5 mm. long, 2.5-3 mm. broad, greenish, more or less fan-shaped, transversed by 9-10 veins; petals 2 mm. broad, 1 mm. long, shaped like a clover's knife, purple; stamens seated on the edge of the tube, 1.2 mm. long, the yellow anthers about equal to the purple filaments; styles 2, distinct, thickened below; fruit deep wine color, without a bloom, globose, 6-8 mm. in diameter, bearing reddish stalked glands and minutely puberulent.

Woods Spirit Lake, Putnam

to

var. coloradense (Cov.) Jancz. Differs chiefly in the thicker leaves with more obtuse lobes, more bushy habit and the absence of stalked glands upon the veins of the leaves; apparently a subalpine form which passes in the species at lower elevations. (R. coloradense Cov.)

Occurs infrequently in dense masses along subalpine streams, often sprawling over boulders. Associated with R. lacustre and Menziesia glabella.

not → Revett Cr., 1 mile below lake, 4000 ft., Putnam; Revett Lake at outlet, 6000 ft., Epling, Houck and Putnam 10114; Rattle Cr., 4200 ft., Riley and Putnam.

8. R. aureum Pursh. Golden Flowering Currant. An erect unarmed shrub 1-2 m. tall, the bark greyish mahogany color, smooth, young growth cinereous with a close, crisp pubescence and bearing golden sessile glands which are soon lost; leaves pale green, the blades rotund in outline, rounded-cuneate to truncate or hemispherical at the base, 3-lobed above the middle, infrequently 5-lobed, the lobes ovate, entire or shallowly toothed, puberulent and densely beset with sessile golden glands in youth, glabrate and glandless at maturity, the petioles subequal or shorter, puberulent, bearing a few short stalked glands near the lightly expanded base, or sometimes on the same plant a few plumose hairs, these sometimes glandular; racemes ascending or drooping, 5-15 flowered, puberulent and glandular, the bracts subfoliar, elliptical, 5-10 mm. long, pedicels 3-5 mm. long; calyx bright yellow or reddish, tubular, the tube 6-7 mm. long, the lobes oval, 4 mm. long; ~~the~~ petals reddish purple, or yellow, elliptical, 2 mm. long; ~~the~~ stamens inserted with the petals, somewhat shorter, the filaments red, subulate, the anthers equal; style 2-lobed at the summit; berry glabrous, globose, 6-9 mm. in diameter, deep yellow, infrequently reddish or black, surmounted by the conspicuous persistent perianth.

Scarcely proper to our region. Hope, Dunkle; Clearwater R., Geyer 394.

9. R. niveum Lindl. Snake River Gooseberry. Erect shrub 1-3 m. tall, the branches drooping; bark mahogany color or grey in age, glabrous; buds ovoid, 3-4 mm. long, the scales glabrous or the margins ciliolate; leaves dull green, the blades rotund or ovate, 2-5 cm. broad, rounded or cuneate at the base, infrequently subcordate, 3-lobed above the middle, or 5-lobed, the lobes 3-5 toothed, the teeth ovate, apiculate, glabrous or lightly pubescent on both surfaces, the lower paler, not glandular, petioles 1-2 times as long as the blades, more or less villous, particularly on the upper surface, expanded at the base, the margins with a few stalked glands; nodes unarmed or with 1-3 stout spines; racemes drooping, 1-6 flowered, several borne at the apex of lateral fruit-spurs, the bracts 1-1.5 mm. long, rotund-ovate, the margins ciliolate; pedicels filiform, 6 mm. long; calyx narrowly campanulate in flower, glabrous, the tube 2-2.5 mm. long, villous within, the lobes white, 5-6 mm. long, lanceolate or oblanceolate, erect; stamens 9 mm. long, slenderly subulate, pilose; styles subequal, pilose, united 2/3 their length; berry black, glabrous, 5-7 mm. in diameter, the long, persistent perianth conspicuous.

Scarcely proper to our region. Julietta, Darlington. Apprently confined to Snake and Columbia Rivers and their tributaries.

petals cuneate, erect, white, 2 mm. long;

10. R. lacustre (Pers.) Poir. Prickly Currant. A shrub of diverse habit .5-2 m. tall, much branched, the stems ascending and rigid in sun forms, often trailing over logs and shrubbery in shade forms, forming natural layers in moist conditions, mature bark mahogany color, shining, marked by irregular lenticels, entirely smooth, or especially on suckers, densely armed with straight bristles, all gradations occurring, even on the same plant, new growth green, crispulous, not glandular soon becoming tan-colored or light brown; buds 4-5 mm. long, ovoid, the terminal larger, light brown, bisecting the angles, the scales chaffy, their margins glandular; leaves exceedingly variable in size and shape, 1.5-2 cm. broad in sun forms, 8-10 cm. broad on suckers and in shade forms, usually about 5-7 cm. broad, ovate to reniform, commonly rotund, cordate to truncate on the same plant, the sinus usually broad, 5-lobed, the lobes cut about half way to the base, frequently deeper, obovate, cuneate, incised and toothed at the apex, the teeth apiculate, both surfaces glabrous and without glands, rarely hirsute, or the margins ciliolate, the upper surface somewhat glossy, the petioles slender, 1-2 times as long as the leaves, expanded but not membranous at the base, the margin with sessile or stalked glands but never with branched hairs the node unarmed or armed with 1-5 spines, connate at the base; racemes pendulous, 6-25 flowered, usually about 12-flowered, glandular with stalked reddish glands, the bracts lanceolate, 2-3 mm. long, glandular, pedicels 3-6 mm. long, divaricate; calyx saucer shaped, glabrous, purplish and green, the tube 1.5 mm. long, the lobes subequal, subrotund; petals purple, fan-shaped or shaped like a glover's knife; stamens 1.2 mm. long, the filaments even, seated on a purple disc; styles joined about half their length, the hypanthium campanulate, densely long-glandular; berry purplish black, 4-5 mm. in diameter, globose, beset with long glands; seeds ovoid, about 2 mm. long. ——→(R. echinatum Dougl.)

Abundant throughout our region at all elevations, commonly in moist, more or less shaded places, but found in dry burns, infrequent in swampy places, common on rock ledges, reaching its greatest development on northerly subalpine slopes in seepage areas, associated with a rich herbaceous covering or Menziesia glabella.

11. Wild Red Current

R. triste Pall. Stems prostrate, creeping and rooting at the nodes, the branches ascending, 30-50 cm. tall, branchlets green, glabrous; buds 2-3 mm. long, obtuse, pressed to the stem; petioles 4-6 cm. long, nearly glabrous, bearing a few long hairs 2-4 mm. long near the somewhat expanded base; blades cordate-reniform, deeply cordate at the base the lower lobes rounded, 6-15 cm. broad, 3-(5)-lobed, the lobes obtuse, or acutish, the middle lobes divergent, the margin serrate, the teeth ovate, but apiculate, giving a sharp appearance to the serrations as a whole, sparingly ciliolate, both surfaces green and glabrous, dull, not glandular; racemes drooping, 3-4 cm. long, 7-9 flowered, minutely crispulous, bearing a few sessile resin dots, otherwise not glandular, bracts ovate, 1-2 mm. long, green, glabrous; calyx tube scarcely 2 mm. in diameter, shallowly cup-shaped, glabrous, the lobes thin, green and purple, somewhat fan-shaped, 2.5 mm. in diameter; ~~the~~ petals purple, obovate ,7 mm. long; stamens seated on the edge of the tube, shorter than the erect petals, anthers white, notched, the filaments purple, twice the length of the anthers; styles purple, .8 mm. long, joined and thickened at the base; fruit glabrous, bright red, 6-8 mm. in diameter.

Growing in shade along Twin Creeks, Little North Fork of Clearwater River, 4300 ft., associated with Ribes lacustre and R. petiolare, Putnam and Riley. Spokane Meadow, Epling and Kempf. Foliage may be distinguished from that of R. petiolare by the long hairs at the base of the petioles.

Garden Currant.

R. sativum Syme. Rarely occurs near habitations as an escape. It may be distinguished by the softly hairy, not glandular leaves, the greenish, non-glandular flowers and bright red fruit.

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481 - 488, 184 - 187, 227 - 234, 236 - 238,
477 - 479, 472 - 476, 459, 327 - 332,
454 - 455, 518 - 553, 164 - 191, 226, 192 - 225,
273, 241 - 272, 281 - 300, 274 - 280, 490 - 517,
235 - 240.

PP 472, 327-332, 473-480,
534-555, 518-553, 189-191, 226, 192-225
421-447, 188, 448-459, 241-326,
490-517.

Hypericaceae. St. Johns-wort Family.

Herbs or shrubs with opposite small leaves, mostly sessile, without stipules. Flowers in more or less showy cymes, regular, perfect. Sepals ~~4 or~~ 5. Petals ~~4 or~~ 5, convolute in the bud. Stamens many or few, in usually 3-5 clusters. Pistil 1, the ovary 1-chambered with parietal placentae ~~or 3-7-chambered with central placentae.~~ Fruit a capsule; seeds numerous.

Hypericum (Tourn.) L. St. Johns-wort.

Ours glabrous perennial herbs with characters of the family. Sepals 5, slightly unequal. Petals yellow, 5. Stamens 6-12 in 3-5 clusters. Ovary 1-chambered with 3 parietal placentae. Styles 3-5.

o Petals subequal to the sepals or shorter, 2-5 mm. long

2 Procumbent; leaves broadly oval, 4-10 cm. long — 1. H. anagalloide

2 Erect; leaves narrowly ovate, 1-2 cm. long — 2. H. majus

o Petals twice the length of the sepals or more

2 Leaves sprinkled with translucent punctures; 6 erect plants with numerous short lateral branches — 3. H. perforatum

2 Leaves with few or no translucent punctures; plants 6 erect or decumbent at the base, the branches few, corymbose — (4) H. formosum

1. H. anagalloides C. & S. Tinker's Penny. A prostrate moss-like perennial, forming mats 10-20 cm. broad, the stems 10-15 cm. long; leaves oval or rotund, 4-10 mm. long, sessile, clasping, the first formed usually smaller; flowers few on slender pedicels .5-1.5 cm. long, solitary and terminal but appearing axillary or in the forks of branches due to the growth of the lateral buds; sepals subfoliar unequally obovate or subspatulate, 4-5 mm. long; petals orange-yellow, 4-5 mm. long; stamens 12, capsule mostly shorter than the persistent clasping sepals.

In muddy ground in meadows or along streams. Orogrande Cr. 3000 ft.; Bungalow R. S. Ranging from British Columbia and Montana to California, the type locality of this dainty Hypericum is San Francisco where it was collected by Chamisso in 1816.

2. H. majus (Gray) Britton. ~~A low perennial~~ (15-20 cm. tall) ⇒ stems erect, clustered, the internodes about as long as the leaves; the lower leaves oval or spatulate, the upper oblong-ovate, sessile and clasping, 1.5-2.5 cm. long, broadest at the base, thickly punctate, the principal veins 3, unbranched flowers inconspicuous in a terminal rather dense cluster, the bracts linear, 4-5 mm. long; sepals lanceolate, acute 5 mm. long; petals yellow, shorter than the sepals, 2-3 mm. long; stamens 6-12; styles 1-2 mm. long; capsule scarcely exceeding the sepals, 1-chambered.

Occasional in marshy ground at low elevations. ——————

no H → Priest Lake, 2700 ft., Epling 7786; Granite Station, Epling.

3. H. perforatum L. Goat Brush. An erect rather stiffish ~~perennial~~ herb 50-60 cm. tall or more, with numerous short lateral branches; leaves pale, 1-1.5 cm. long, 2.5-4 mm. wide, oblong, sessile, densely punctate; flowers many in a very showy panicle, the bracts subfoliar; sepals lanceolate, 4 mm. long, very acute; petals 10-12 mm. long, narrowly oval, twisted after flowering, the margins black-punctate; stamens about half the length of the petals; capsule 7-8 mm. long, 3-lobed and 3-chambered, the persistent styles 5 mm. long.

Occasional along roadways in the grassland or in association with yellow pine; abundant on the slopes of the Clearwater Canyon where it is gradually spreading; ~~becoming~~ a serious range weed in the Salmon River country.

4. H. formosum Kunth.

Cap. slender nearly erect stems ~~[illegible]~~ with slender rootstocks ——→ usually branched only in the inflorescence, 30-40 cm. tall, the internodes twice as long as the leaves or less; leaves 1.5-2.5 cm. long, the lowermost leaves often oval, for the rest, oblong-ovate, widest near the base, sessile and clasping, narrowed evenly to the tip but hardly acute, pale green and rather glaucous, sparingly or not at all punctate; flowers showy in terminal clusters subtended by subfoliar but much reduced bracts; calyx-lobes ovate, 2.5 mm. long, the margins often punctate with black glands; petals rich yellow, oval, 8-10 mm. long, usually black-punctate along the margins; stamens nearly equal to the petals; styles 3 mm. long; capsule 5 mm. long, surrounded by the persistent petals.

Along roadways and meadows at lower elevations.

Var. Scouleri (Hook.) Coult. Commonly lower, 15-25 cm. tall, branching at the base, decumbent, the lowermost leaves orbicular, the others oval, broadest at the middle. —— ——————→

no H → Frequent at higher elevations along small streams or in meadows or on moist outcrops.

Violaceae. Violet Family.

Herbs with alternate or basal simple leaves, bearing stipules. Flowers perfect, zygomorphic. Sepals and petals 5, the petals imbricate in the bud, the lowermost spurred or saccate at the base. Stamens 5, the anthers more or less joined over the pistil. Pistil 1, the style club-shaped. Fruit a 1-chambered, 3-valved gaping capsule, each valve bearing a parietal placenta along the middle.

Viola (Tourn.) L. Violet.

Low perennial herbs, the leaves either alternate or more or less erect stems, the flowers axillary, or the leaves and flowers basal arising from rootstocks. Flowers of two kinds, those of the spring showy, with both calyx and petals, those of the summer (cleistogamous) inconspicuous, hypogeous, the petals rudimentary or wanting. Sepals 5, the bases produced into auricles. Petals 5, yellow, or blue, the lowest usually spurred. Stamens 5, more or less united, the two lower nectar-bearing appendages projecting into the spur.

o Petals yellow

z Plants with manifest stems, erect, 15-40 cm. tall; flowers

6 axillary in the upper leaves — 1. V. glabella

z Plants with short rootstocks, the leaves in a basal tuft,

o { or creeping and rooting at the nodes, rarely more than 10 cm. tall

4 Stems creeping, stoloniferous; leaves obscurely mottled

8 with minute irregular spots — 2. V. sempervirens

4 Stems not creeping, plants tufted, stolons few or none;

leaves evenly green throughout — 3. V. orbiculata

o Petals blue, lavender or white

2 Lower petals produced backward into a spur 4-7 mm.

6 long; petals blue

4 Leaves prevailingly cordate at the base;

8 { plants 5-20 cm. tall, more or less pubescent — 4. V. adunca

4 Leaves rounded or truncate at the base;

8 plants 3-8 cm. tall, glabrous — 5. V. bellidifolia

2 Lower petals produced into a rounded sac 1-2 mm. long;

6 petals white or lavender

4 Plants 6-12 cm. tall; leaves 3-4 cm. broad — 6. V. palustris

4 Plants 2-4 cm. tall; leaves 1-2.5 cm. broad — 7. V. Macloskeyi

1. V. glabella T. & G. Erect herbs, the rootstocks stout, 8-10 mm. in diameter, scaly; stems frequently 2 or 3, erect, 15-30 cm. tall, sparingly pubescent; basal leaves cordate or kidney-shaped, glabrous, ample, 3-6 cm. in diameter, the margins crenately serrate, ciliolate, on petioles 5-10 cm. long; cauline leaves appearing opposite in one or two pairs; flowers solitary in the axils of the uppermost leaves, the peduncles slender, 1-4 cm. long; sepals narrowly lanceolate, 4-5 mm. long; petals yellow, the lowermost purple-striate near the base; capsule 8-9 mm. long.

Abundant throughout our region in moist woods and bottoms; the common species of summer woods.

2. V. sempervirens Greene. Creeping prostrate herbs, stoloniferous, the stolons 15-25 cm. long; leaves cordate-orbicular, the blades 2-3 cm. broad, punctate with brownish dots, remotely crenate, the petioles 2-3 cm. long, glabrous; peduncles shorter than the leaves, bracteate; the middle sepals lanceolate, acute, dotted similarly to the leaves, the margins thin; corolla yellow, veined with brown, 6-7 mm. long, the upper and bearded laterals oblong-oblanceolate, the lip roundat longer, narrowed at the base; style clavate, somewhat bilobed, the spur very short and blunt. (V. pensylvanica auct. non L.).

3. V. orbiculata Geyer. → Acaulescent herbs from a rootstock about 1 cm. long; stolons 3-6 cm. long, ascending, bearing 2-3 small bracts; leaves 2.5-3 cm. in diameter, rotund, deeply cordate at the base, the margin shallowly and remotely crenulate, upper surface sparingly hispidulous, lower surface glabrous, petioles 3-6 cm. long, slender; peduncles shorter than the leaves, bracteate below the middle; sepals 3.5-4 mm. long, lanceolate, acute, the margins green, the middle reddish, but little prolonged at the base, the tips spreading; corolla yellow, the throat lined with brown, petals 6-8 mm. long, the upper and laterals oblong-oblanceolate, the latter somewhat larger, the lip slightly longer, obovate, notched, narrowed at the base; style clavate, scarcely beaked; the spur very short and blunt; capsule 5-6 mm. long.

Common throughout our range in fairly open woods, 2500-5000 feet; at least some of the foliage is biennial. Type locality is the Coeur d'Alene Mts. where it was collected by C. A. Geyer in 1844.

4. V. adunca Sm. → Erect, tufted, frequently much branched at the base, 5-20 cm. tall; leaf blades ovate, 3-5 cm. long, obtuse but the sides straight above the middle, lightly cordate at the base, both surfaces sparingly pubescent, the margin shallowly crenate, the crenae 3-4 mm. wide, petioles puberulent, 5-10 cm. long; peduncles about equal to the leaves, glabrous; calyx-lobes 4-6 mm. long, narrowly lanceolate, very acute, the margins thin; corolla blue, the upper petals obovate, 6 mm. long, the laterals similar, larger, bearded with filiform hairs near the base, the lip 8-9 mm. long, obovate-rotund, produced backward into a blunt straight spur 5 mm. long; capsule 5-8 mm. long; cleistogamous flowers on pedicels 2-3.5 cm. long.

Mostly in open young woods, in gravelly soil or on rocky outcrops and along trails, usually at lower elevations.

var. glabra Brainerd. Leaves thin, glabrous, broadly ovate to rounded-reniform on slender petioles 2-7 cm. long. —Margin of Priest Lake near Coolin, Kpling; Leiberg, Kpling.

5. V. bellidifolia Greene. Low tufted herbs 3-6 cm. tall, the rootstocks branching, often several centimeters long; stems obscure, 1-2 cm. long; stipules lanceolate, attenuate, 8-10 mm. long, the margins with several glandular-tipped bristles; leaves 1-1.5 cm. long, ovate, subtruncate or lightly cordate at the base, very obtuse, both surfaces glabrous, the margin obscurely serrulate, petioles 1.5-2.5 cm. long; peduncles 2.5-3 cm. long, the bracts 4-5 mm. long; sepals narrowly lanceolate, unequal, 5-6 mm. long, acute, the margins thin; flowers blue, upper petals obovate-oblong, 3-4 mm. long, the laterals 6 mm. long, spreading somewhat, lightly bearded near the base with filiform hairs, the lower lip obcuneate, 7-8 mm. long, truncate at the apex, concave, striped, whitish toward the base, 5-6 mm. wide, the spur 4-6 mm. long, straight or curving at the tip, even.

In moist gravel on subalpine ridges. See Baker (Madrono 5: 223) relative to the validity of this species.

no H → ?Fish Lake, 7000 ft., Epling and Houck 9573; Upper Priest R., 3000 ft., Epling 7304; Roman Nose, 7000 ft., Epling.

6. V. palustris L. Rootstocks slender, green, about 2 mm. in diameter, producing stolons in summer and forming dense mats, the stolons bearing perfect flowers in favorable situations; leaves light green, subrotund to broadly ovate, 3-4 cm. in diameter, deeply cordate, the sinus closed, both surfaces glabrous, the margin shallowly crenate, the crenae 3-4 mm. broad, petioles 5-10 cm. long, stipules lanceolate-acuminate, 6-7 mm. long; peduncles 3-12 cm. long, the bracts alternate, 4-5 mm. long, awl-shaped; sepals lanceolate, 5-6 mm. long, acute, margins thin; corolla lavender or white, the lip and usually the wings purple-striate, upper petals and wings subequal, 8-9 mm. long, the latter with a well defined twist outward, the lip oblong, to orbicular, plane, recurved at the tip, about 7-10 mm. long, the spur 2-3 mm. long, 1.5-2.5 mm. broad, rounded; capsule 6-7 mm. long, ovoid.

In bottoms usually much shaded, throughout our range at all altitudes.

7. V. Macloskeyi Lloyd. Acaulescent, glabrous, 2-4 cm. tall, the leaves 3-5, the blades orbicular-subreniform, shallowly crenate, 1-2.5 cm. broad, on petioles as long or somewhat longer; flowers 1 or 2 on peduncles 2.5-4 cm. long, exceeding the foliage; sepals ovate-lanceolate, 3-5 mm. long; petals white, about 5 mm. long, the laterals with a mimute tufted beard or glabrous, the spur 1-1.5 mm. long, very obtuse and rounded.

In mud of Upper Priest R., 3000 ft., Epling 7597; subalpine slope above the cirque lake, Roman Nose Mt., 7000 ft., Epling; seepage pool, Heippe, Epling.

Malvaceae. Mallow Family.

Herbs or shrubs with alternate palmately veined or lobed leaves bearing stipules. Flowers perfect, regular. Sepals 5, more or less united, persistent, valvate, often subtended by a whorl of sepal-like bracts. Petals 5, convolute. Stamens numerous, monadelphous, forming a column around the styles and more or less united at the base to the petals. Pistils several, appearing as one, the ovaries more or less united into a ring and separating at maturity or forming a capsule with several chambers.

- Style branches filiform, not capitate; carpels falling
  - 4 apart at maturity, 1-seeded, indehiscent
    - 2 Bractlets none; carpels 5-9 — 1. Sidalcea
    - 2 Bractlets 3 subtending the calyx; carpels numerous — 2. Malva
- Style branches capitate; carpels remaining joined at
  - 4 maturity, 1-3-seeded, dehiscent — 3. Sphaeralcea

1. Sidalcea Gray.

Ours perennial herbs from a woody rootstock with alternate palmately lobed leaves, the basal, unlike the ~~stem leaves~~ cauline, bearing branched hairs. Flowers showy in terminal racemes or panicles. Sepals 5, united at the base. Petals rose-colored, emarginate. Stamens in two more or less distinct series, the filaments of the outer series united into usually five sets, the inner ten sets. Styles stigmatic along the inner surface. Carpels 5-9, separating from the axis at maturity, 1-seeded, indehiscent.

1. S. oregana (Nutt.) Gray. Stems several, forming small clumps with numerous basal leaves, 50-60 cm. tall, prostrate at the base, ascending, the internodes 5-10 cm. long, the basal leaf-blades nearly rotund or kidney-shaped in outline, 5-10 cm. in diameter, merely toothed or cleft about to the middle, usually into 7 wedge-shaped lobes, these again coarsely toothed at the apex, on petioles 10-20 cm. long, the cauline leaves divided nearly or quite to the base, the divisions 3-5 in the uppermost, slender, usually entire; both surfaces of all leaves more or less densely pubescent, harsh to the touch; raceme dense, 5-30 cm. long, the flowers except the lowermost mostly 3-6 mm. distant, the bracts linear, .5-1 cm. long, often forked; pedicels 2-3 mm. long; calyx densely and minutely pubescent, the lobes ovate-lanceolate, 3-5 mm. long, half again as long as the tube; corolla rose-purple, about 1 cm. long; carpel clusters 5-6 mm. wide, 3 mm. tall, the carpels smooth.

Along roadsides and in meadows at lower elevations. This plant shows marked dimorphism of the flowers so that variability in the nature of the inflorescence and flower size will be noted within a single community.

2. Malva (Tourn.) L.

Annual or perennial herbs with alternate leaves. Flowers solitary or clustered in the axils of the leaves, each subtended by 2 or 3 bractlets. Sepals 5, partly united. Petals 5, obcordate. Stamens numerous. Styles stigmatic down the inner surface. Fruit flattened, separating at maturity into numerous 1-seeded indehiscent kidney-shaped carpels.

Mallow.

1. M. neglecta Wallr. Cheeses. A weedy herb 20-30 cm. tall, the branches ascending or decumbent, thinly pubescent with branched hairs; leaf blades 1.5-2 cm. broad, nearly rotund, shallowly 5-lobed, the lobes rounded, deeply cordate at the base, the margin dentate, undulate, both surfaces hairy with branched hairs, petioles 1-2 cm. long; flowers on pedicels 1.5 cm. long; calyx 6-7 mm. long, the bracts half as long; petals white, 12 mm. long, oval, deeply notched, the veins purplish; fruits 5-6 mm. in diameter, 2 mm. tall, the carpels about 12, pubescent. (M. rotundifolia Am. auth., not L.).

A frequent weed around dwellings and in waste places; naturalized from Europe. For "correct names of small-flowered mallows" see C. V. Morton, Rhodora 39: 98.

3. Sphaeralcea St. Hil.

Perennial herbs with alternate, palmately lobed leaves, bearing branched hairs. Flowers showy in terminal racemes, each subtended by 1-3 bractlets. Sepals 5, united at the base. Petals notched at the apex. Styles capitate and stigmatic at the apex only. Fruit a capsule, the carpels 4-9, 2-3-seeded, opening at length by 2 valves.

1. S. acerifolia (Nutt.) T.& G. Globe Mallow. An erect and handsome herb 1-2 m. tall or more, the stems often several from a thickened, rather woody caudex 2-4 cm. in diameter, glabrous or pubescent with branched hairs, the internodes 15-25 cm. long; leaves maple-like, 8-15 cm. long, of about the same breadth, 5-lobed, the middle lobe largest, all triangular, acute, the margins ~~el~~ coarsely toothed, the teeth rounded, unequal, both surfaces lightly pubescent or glabrate, petioles 3-6 cm. long; flowers in clusters of 3-5, racemose, each cluster subtended by 3 bracts about equal to the calyces or shorter; calyx 7-8 mm. long, bracteate, the lobes as long as the tube, ovate, densely pubescent; corolla pale flesh color to rose, 2-2.5 cm. long, the petals obovate-rotund; styles about 10, capitate, joined in the lower third, ovary densely hairy; fruit 6-7 mm. tall, 8-9 mm. in diameter, flattened cylindrical, coarsely hispid, the carpels about 15, lightly joined, dehiscent from the apex down; seeds nearly kidney-shaped, 1.5 mm. in diameter, hispidulous. (Phymosia rivularis Rydb.).

Common throughout our region especially in young burns, as high as 6000 ft., in subalpine meadows or burns. Utilized as sheep forage in subalpine meadows.

Geraniaceae. Geranium Family.

Herbs with divided or lobed opposite leaves bearing membranous stipules. Flowers perfect, regular, 5-parted. Sepals persistent, imbricate. Petals 5, deciduous. Stamens 10, all bearing fertile anthers or five with anthers and five sterile. Pistil 1, the ovary superior, five-lobed, the carpels 5, adnate with their tail-like styles to a central beak-like column from which they separate elastically at maturity, each with 2 ovules but 1-seeded.

○ Leaves palmately divided; tails of the carpels recurved
2 but not coiled at maturity, glabrous within — 1. Geranium

○ Leaves pinnately divided; tails of the carpels spirally
2 coiled at maturity, pubescent within — 2. Erodium

1. Geranium (Tourn.) L.

Annual or perennial herbs with palmately divided leaves. Flowers more or less showy. Petals violaceous, rose-colored or white. Stamens 10, rarely 5, the filaments more or less united at the base. Style-column beaklike, the styles glabrous within and recurved.

○ Petals 2-9 mm. long; stems from slender, often simple rootstocks
2 Petals 2-3 mm. long; stamens 5; seeds smooth — 1. G. pusillum
2 Petals 6-9 mm. long; stamens 10; seeds ~~reticulately~~ pitted
~~2 pitted~~
4 Beak of mature style-column 3-3.5 mm. long;
2 plants 20-30 cm. tall; annual — 2. G. carolinianum
4 Beak of mature style-column 4.5-5 mm. long;
plants 40-50 cm. tall; perennial — 3. G. Bicknellii

○ Petals 12-20 mm. long; stems caespitose on stout scaly
4 rootstocks

1 Petals white; plants of moist meadows — 4. G. Richardsonii

2 Petals rose-purple; plants of dry meadows

4 Calyx-lobes 8-11 mm. long; plant glandular

2 but not viscid — 5. G. incisum

4 Calyx-lobes 10-15 mm. long; plant viscid — 6. G. viscosissimum

1. G. pusillum Burm. f. A decumbent or prostrate annual with several stems 20-30 cm. long, slender, puberulent; leaves numerous, the blades kidney-shaped, 2.5-4 cm. in diameter, the basal leaves cleft into about 7 segments, these usually three-toothed, borne on petioles 5-8 cm. long, the stem leaves more deeply cut, the divisions commonly 5, more or less pubescent, the petioles quite slender, 3-5 cm. long; flowers numerous in pairs on a short peduncle in the axils of the leaves, the pedicels and peduncles subequal, very slender, 1-1.5 cm. long; sepals 2.5 mm. long, pilose, petals violaceous, scarcely longer than the sepals, notched, wedge-shaped; mature column 1 cm. long, the achenes pubescent; seeds smooth, 1.5 mm. long.

Occasional in the warmer valleys. Introduced from Europe. Blue Creek; Thatuna Hills; Harvard.

2. G. carolinianum L. Cranebill. Annual, the stems erect or decumbent, 20-30 cm. tall, branching in the upper parts, glandular-pubescent; leaf-blades reniform, 3-4 cm. broad, parted into about 7 wedge-shaped segments, the segments again more or less pinnately toothed or lobed, the upper surface with short appressed hairs, the lower pale, hirsute on the rather prominent veins; sepals 6 mm. long, hirsute towards the margins; petals subequal to the sepals, pinkish or whitish, wedge-shaped; mature style column 1.5 cm. long, pubescent, the beak and styles 3-3.5 mm. long, the latter not spreading; achenes 3.5 mm. long bearing a few stiff bristles; seeds 2.5 mm. long, finely reticulate.

An occasional weed at lower elevations, around dwellings and in orchards. Bungalow R. S., Epling and Houck 9730.

3. G. Bicknellii ~~Britton~~ var. longipes (Wats.) Fern. Annual or short-lived perennial 40-50 cm. tall, the stems pubescent with rather stiff spreading hairs; leaf-blades 4-6 cm. broad, rounded, 5-angled in outline, usually 5-lobed, the lobes wedge-shaped, again lobed and toothed towards the apex, both surfaces sparingly pubescent, the branches hardly glandular; sepals 6 mm. long, increasing to 9 mm. in fruit, acuminate, hispid towards the margins, the tip slender, 2 mm. long; petals pale pink, 6-6.5 mm. long; style columns 1.5 cm. long at maturity, hispidulous, the beak and styles 5 mm. long, the achenes 3 mm. long, hispid; seeds 2.5 mm. long, minutely reticulate.

At margin of a boggy meadow, Priest R. Exp. Sta., 2700 ft., Epling 5944; Headquarters, Epling; Spokane Meadow, Epling and Kempf.

4. G. Richardsonii Fisch. & Trautv. ⟶ An attractive perennial, the stems erect, branching in the inflorescence, glandular with spreading hairs; leaves bright green, the blades kidney-shaped, 5-10 cm. wide, 5-lobed nearly to the base, the lobes rhombic-cuneate, acute, sharply lobed and toothed, the teeth coarse, obtuse, both surfaces sparingly hispid, the lower paler, glandular; flowers in pairs in open panicles, the peduncles and pedicels glandular, bractlets lanceolate, 3-4 mm. long; calyx-lobes 1 cm. long, 3-veined, the margins thin, the mucro 2 mm. long; petals white, broadly obovate, hairy at the base; stamens 1/3 the length of the petals; style column and achenes glandular, the former 22 mm. long at maturity, the latter 4 mm. long. ~~(G. loloense St. John is to be compared with this species.).~~

Along boggy wood margins more or less shaded. Near Pierce, Epling and Houck 9250; Headquarters, Epling.

5. G. incisum Nutt. → Several erect rather slender stems 40-60 cm. tall, gracefully branched in the inflorescence, puberulent and somewhat glandular, but not viscid; basal leaves several, the blades 9-10 cm. broad, kidney-shaped, 5-lobed nearly to the base, the lobes wedge-shaped, incised toward the apex into two or three divisions which are usually toothed, thinly clothed on both surfaces with sparse short hairs, sparingly glandular if at all, the floral leaves shortly petioled or sessile; flowers in a spreading, shortly glandular panicle 20-30 cm. long, the bracts subfoliar but greatly reduced, pedicels 3-4 cm. long, shortly glandular and more or less woolly; calyx lobes 8-11 mm. long, pubescent and glandular; petals rose-purple, 15-18 mm. long, obovate, pilose in the lower half; style column glandular-puberulent, 2 cm. long in fruit, the persistent beak and styles 8-10 mm. longer; achenes puberulent, 5 mm. long, somewhat glandular; seeds 3-3.5 mm. long, finely reticulate.

Usually within the white pine type at all elevations in meadows; difficult to distinguish from the ~~preceding~~ following but more graceful, the segments more slender, the plants less viscid. Subalpine meadows at Fish Lake, 6000 ft.; near Weippe; Vanderbilt Gulch; Bearskull Mt., 4000 ft.

6. G. viscosissimum Fisch. & Meyer. → Several erect stems 60-100 cm. tall, much branched in the inflorescence, pilose and densely glandular throughout, viscid; basal leaves numerous, the blades 10-15 cm. in diameter, rotund or somewhat reniform in outline, 5-lobed nearly to the base, the lobes wedge-shaped, coarsely toothed or lobed towards the apex, softly hirsute on both surfaces, usually glandular beneath, borne on viscid-hirsute petioles, the floral leaves 3-5 lobed and nearly sessile; flowers in a spreading glandular panicle 30-40 cm. long, the bracts subfoliar but greatly reduced, the pedicels increasing in fruit; calyx-lobes 10-15 mm. long, 3-veined. hispid-glandular; petals rose-purple, obovate, 15-18 mm. long, pilose in the lower half; style column glandular, 2.5 cm. long in fruit, the beak and spreading persistent styles 10-12 mm. longer, the achenes 4.5 mm. long, plump, glandular; seeds 3.5 mm. long, finely reticulate.

In the warmer valleys usually below 3000 ft., forming clumps along roadways, on dry gravelly slopes in the open; occasional puzzling forms occur which are hardly or not at all glandular. Near Moscow; Carlin Bay; Santa; Lake Coeur d'Alene; Harvard; Troy; Fernan Lake.

2. Erodium L'Her.

Annual or perennial herbs with pinnately divided leaves. Flowers small, not conspicuous. Petals rose-colored. Stamens 5, alternating with five sterile filaments or staminodia. Style column beak-like, elongate in fruit, the styles ~~glabrous~~ pubescent within and spirally recoiled at maturity after splitting from the column.

1. E. cicutarium (L.) L'Her. Filaree. A low hirsute procumbent weed, forming small mats; cuneate-ovate leaflets ~~again~~, once or twice divided; petals slightly longer than the sepals, pink; anther-bearing filaments not toothed; peduncles erect in fruit, bearing the rather conspicuous cluster of beak-like fruits; style column 3-4 cm. long; seeds smooth.

A weed of waste places and dry meadows naturalized from Europe; infreque: Increasingly common southward in Idaho where it was apparently well establish a century ago.

Euphorbiaceae. Spurge Family.

Ours herbs with ~~white,~~ milky juice; leaves opposite, alternate or whorled. Flowers inconspicuous, without petals or sepals, borne in a cup-shaped involucre resembling a calyx which often bears crescent-shaped or petal-like glands. Stamens in ours single. Ovary superior, 3-chambered, commonly lifted out of the involucre by the pedicel; styles 3, 2-cleft. Fruit a capsule, splitting at maturity into 3 2-valved divisions.

Euphorbia L.

Herbs either annual or perennial. Involucres solitary in the axils, bearing 4 or 5 small lobes which alternate with crescent-shaped glands. Flowers unisexual, several staminate and 1 pistillate being contained within the involucre, each of the former consisting of a single stamen, the latter of a single, stalked ovary, both kinds without calyx or corolla. Capsule 3-chambered, each with 1 seed.

- Erect, the flowers in conspicuous terminal umbels;
  - 4 involucral glands yellowish green — 1. E. Cyparissias
- Low prostrate or decumbent mat-like annuals;
  - 4 flowers axillary, the glands with white margins
    - 2. Seeds strongly transversely wrinkled; leaves 1-3 6 mm. broad — 2. E. glyptosperma
    - 2. Seeds faintly pitted or somewhat wrinkled; 6 leaves 3-4 mm. broad — 3. E. serpyllifolia

1. E. Cyparissias L. Cypress Spurge. An erect perennial with bright green foliage and several stems 20-30 cm. tall, very leafy, the stem leaves linear, 1-3 cm. long, 1-3 mm. broad, the lower alternate, those at the base of the inflorescence whorled, the floral leaves cordate or reniform; flowers in a many-rayed umbel, the glands crescent-shaped without appendages.

An occasional weed around dwellings and in waste places; naturalized from Europe.

E. Peplus L. Annual; 20-30 cm. tall, bushy; obovate leaves abruptly narrowed to slender petioles 3-10 mm. long. Immigrant from Europe.

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2. E. glyptosperma Engelm. A glabrous annual with spreading prostrate branched stems 10-20 cm. long; leaves oblong, 4-8 mm. long, 1-2.5 mm. wide, blunt at both ends, entire or with a few minute teeth at the apex, subsessile, the stipules fimbriate; glands of the involucre with a narrow white margin; ovary 1.5 mm. long; seeds covered with a white bloom, bearing a few transverse ridges.

An indigenous weed of waste places at low elevations; St. Maries; Sandpoint.

3. E. serpyllifolia L. A glabrous annual with prostrate branched stems 10-20 cm. long; leaves oval or obovate, 7-8 mm. long, 3-4 mm. wide, sharply toothed at the rounded apex, subsessile, the stipules fimbriate; ~~the~~ glands of the involucre with a white crenulate margin; ovary 1.5 mm. long; seeds covered with a white bloom, pitted or roughened but not with distinct ridges.

An occasional indigenous weed of waste places at low elevations, its foliage reddening in the autumn. Lake Coeur d'Alene, Epling 10008.

Callitrichaceae. Water Starwort Family.

Inconspicuous annual or perennial herbs ~~growing in shallow water or mud~~, with opposite entire leaves which are often crowded towards the ends of the branches. Flowers inconspicuous, 1-3 in the axils, having neither calyx nor corolla but sometimes subtended by 2 membranous bracts. Staminate flower formed of 1 stamen. Pistillate flower formed of a single 4-chambered ovary bearing 2 stigmas. Fruit leathery, indehiscent, splitting into 4 nutlets at maturity.

Callitriche L.

The same characters as the family.

o Floating or emersed leaves obovate or spatulate
4 3-veined; flowers subtended by 2 bracts — 1. C. palustris

o All leaves linear, 1-veined; flowers bractless — 2. C. autumnalis

1. C. palustris L. Annual, the submerged leaves linear, 1-veined, 1-4 cm. long, scarcely 1 mm. wide, the floating leaves, elliptical obovate or spatulate, 3-6 mm. long, 3-veined, narrowed at the base to a petiole 2-3 mm. long, all entire; bracts minute, .5-1 mm. long; fruit obovate, 1.5 mm. long, notched at the apex, lobed, the lobes narrowly winged.

Frequent in slowly moving streams or shallow embayments of lakes or vernal pools.

2. C. autumnalis L. Annual with linear submerged leaves .5-2 cm. long, 1-veined; flowers bractless; fruit sub-orbicular 1-2 mm. long.

To be expected in our region.

Aceraceae. Maple family.

Trees or shrubs with opposite simple or compound leaves, without stipules. Flowers small, regular, perfect or polygamo-dioecious. Sepals 4-5, valvate, distinct or connate. Petals as many as the sepals, inserted on the margin of a more or less evident disc, often wanting. Stamens 3-12. Pistil 1, 2-lobed, 2-chambered, developing into 1-seeded winged carpels (samaras) which separate at maturity.

Acer (Tourn.) L.

Flowers in axillary or terminal racemes or corymbs. Petals five or none. Sepals rarely 4-7. Stamens 8. Ovary superior.

1. A. Saccharinum Wangenh. Silver Maple. A tree like shrub, or particularly in river bottoms, a small slender tree, 3-6 m. tall, the stems slender, forming clumps, the mature bark dull gray, striped with closely crossed lichens, roughish, the inner bark reddish, brittle, branchlets slender, green or reddish, smooth; leaves 1-1.5 cm. long, all the 1-others, broad pointed, cordate, hairy within, the outermost rod; leafblades 3-5-lobed, rounded to heart-shaped, 10-20 cm. broad, the lobes deeply cleft, sharply toothed, the sinuses rounded, the middle lobe 3-lobed or variously cut; petioles 5-10 cm. long, slender, glabrous, the axillary buds small, ovate, obtuse, 2-3 mm. long, the scales ciliate; flowers appearing before the leaves, in dense clusters, the pedicels 1-2 mm. long; sepals 5, oblong, 2 mm. long, yellowish green; petals 5, spatulate, 1 mm. long; stamens 8, exserted; anthers yellow; fruit glabrous, the nutlets inflated, 5-6 mm. long, the wings 3-4 cm. long, divergent or nearly parallel, 1 cm. wide; seeds ovate, compressed, the cotyledons convex.

[illegible] , smaller to 3.0 ft., [illegible] streams or on moist outcrops, often in fairly dense shade, rarely in young [illegible].

→ . [illegible] is a smaller leaved shrub of the central Rocky Mts., ~~being~~ which is replaced in correlation by the ~~present~~ above closely related species which was first [illegible] by Douglas "about the sources of the Columbia."

Anacardiaceae. Sumach Family.

Shrubs or trees with alternate, simple or compound leaves without stipules. Flowers small, regular, polygamo-dioecious or perfect. Sepals 3-5. Petals 3-5, seated on a disc. Pistil 1, the ovary superior. Fruit a berry or drupe.

Rhus. L.

Shrubs or small trees with alternate, pinnate leaves. Flowers in panicles, polygamous or dioecious, greenish or yellowish. Sepals 5. Petals 5, imbricate in the bud. Stamens 5 or 10. Ovary 1-chambered. Fruit a sort of drupe in which the fleshy outer layer becomes dry and loose.

o Leaflets 3, ovate	1. R. Toxicodendron
o Leaflets 11-21, oblong	2. R. glabra

1. R. Toxicodendron L. Poison Ivy, Poison Oak.

A low shrubby plant 10-30 c.m. tall spreading by underground stems, the rooting stems ascending, little or not at all branched; leaves trifoliolate, on petioles 10-15 cm. long, leaflets softly leathery, smooth on both surfaces, 3-10 cm. long, 2-9 cm. wide, broadly ovate, acuminate, mostly rounded to broad base, the margin most often very unequally toothed, the teeth 2-5 m.m. tall, now acute, now blunt, now wholly on one side, now mostly at the middle on both sides; flowers greenish white in short axillary puberulous panicles 3-7 cm. long, borne at the base of the current growth before the leaves expand; sepals 1.5 m.m. long, ovate, obtuse, petals 3.5 m.m. long, pistil 1-ovuled, 3-parted and reflexed; stamens 5 m.m. long; anthers

ivory-white, globose, 4-6 m.m. in diameter, the outer portion of the ricarp loose, the inner fibrous. → *R. Aydbergii* Small).

[illegible] trailing [illegible] trailing [illegible] with [illegible] on [illegible] 3.

[illegible] trailing [illegible] 8 cm. long or more, [illegible] trailing trailing trailing

Celastraceae. Staff-tree Family.

Shrubs with opposite leaves, with or without stipules. Flowers regular, usually perfect. Sepals and petals 4, both imbricated in the bud. Stamens 4, alternate with the petals, seated on a disc which may or may not be joined to the ovary. Pistil 1, the ovary 2-5 chambered. Style short or wanting. Stigma 2-5 lobed. Fruit a ~~capsule, drupe or berry~~ dehiscent pod, in ours.

Pachystima Raf.

Evergreen shrub with minute stipules. Style very short. Fruit a dehiscent pod; seeds arillate.

1. P. Myrsinites (Pursh) Raf. Mountain lover. A compact much branched undershrub with smooth brownish bark, .5-1 m. tall, the branchlets slender, glabrous, leaves ~~opposite~~, 1-2.5 cm. long, leathery, commonly elliptical, frequently oblanceolate or even obovate in shade forms, more or less narrowed at the base to a petiole 1-2 mm. long, the margin sharply but shallowly serrate chiefly above the middle, both surfaces glabrous; flowers inconspicuous, 1-3 in the leaf axils, each subtended by a pair of awl-shaped bracts 1 mm. long; calyx lobes thickened, less than 1 mm. long, reflexed in fruit, petals 1.5-2 mm. long, fleshy, triangular, purplish, the stamens scarcely half as long; pod 6 mm. long, 2-valved, the valves unequal, boat-shaped; seeds 5 mm. long, cylindrical, obtuse, surrounded at the base by the lacerate aril.

Perhaps the most abundant shrub in our region, found at all elevations, occurring especially in open woods and persisting in fairly deep shade.

Rhamnaceae. Buckthorn Family.

Shrubs or trees with simple alternate leaves bearing small stipules. Flowers greenish, regular, perfect or polygamous. Sepals 4 or 5, valvate. Petals 4 or 5 (sometimes wanting), seated on the disc. Stamens 4 or 5, perigynous, alternate with the sepals and opposite the petals. Pistil 1, the ovary 2-3-chambered, more or less united with the disc. Fruit a drupe or capsule.

0 Petals (sometimes wanting) not attenuate at the base into a slender claw; fruit a berry-like drupe with 3-4 nutlets; lateral veins of leaves numerous, parallel — 1. Rhamnus

0 Petals attenuate into a long claw hooded at the apex; fruit dry, splitting into 3 divisions; commonly with two prominent lateral veins, one on either side of the midrib from the base, — 2. Ceanothus

1. Rhamnus (Tourn.) L.

Woody plants with ~~Shrubs or small trees with simple alternate~~ rather conspicuously veined leaves, the lateral veins parallel, the stipules deciduous. Flowers inconspicuous, greenish, axillary, subumbellate. ~~Sepals 4 or 5~~ Disc cup-shaped. Petals ~~4-5 or wanting~~ clawless, borne on the margin of the disc. Stamens ~~4-5~~ borne on the edge of the disc. ~~Ovary 2-4 chambered~~ Styles 2-4. Fruit a berry-like drupe with 3-4 nutlets.

0 Leaves nearly entire, commonly 10-20 cm. long; tending to be oblong — 1. R. Purshiana

Leaves crenulate, the teeth appearing rounded but bearing a minute glandular prong directed toward the sinus; leaves commonly 5-10 cm. long, tending to be obovate — 2. R. alnifolia

1. R. Purshiana DC. Cascara sagrada. A straggling shrub or small tree 3-8 m. tall, the bark gray, rather smooth but dull, mottled with lighter longitudinal areas but scarcely furrowed, branchlets reddish, finely hairy; leaves 10-20 cm. long, 4-6 cm. broad, oval or obovate, ~~commonly somewhat broader above the middle~~, rounded ~~at the apex~~ and blunt or very abruptly acuminate, rounded at the base, ~~the margin~~ nearly entire, ~~both surfaces~~ glabrous or the veins beneath sparingly pubescent, the upper surface dark green, petioles 1-1.5 cm. long; flowers 3-6 in axillary umbels on first year wood on peduncles 1-2 cm. long, the pedicels 5-10 mm. long; flowers 3.5 mm. long, campanulate, calyx lobes acute, deltoid, 1.5 mm. long, pubescent; drupes globose, 8-10 mm. in diameter, red, then black, petals 1 mm. long, hooding the stamens; stamens 5;

Throughout our range at low elevations in alluvial stream bottoms, or boggy places, often in water. Wolf discusses this species, including the ~~Lewis~~ type, in Rancho Santa Ana Bot. Gard. Monog. 1:96. 1938.

2. R. alnifolia L'Her. ——————→ A rather dense leafy shrub 1-2 m. tall, the stems numerous, erect or ascending, with dull reddish brown bark, the branchlets olivaceous; stipules linear, 5-6 mm. long, deciduous, or often persistent; leaves 6-10 cm. long, elliptical [redacted] to obovate, somewhat rounded at the base and usually shortly acuminate at the apex, [redacted] finely crenulate, the teeth appearing rounded but bearing a minute glandular prong which is directed into the simus, the lower surface lightly hairy especially on the veins, petioles 5-8 mm. long; flowers 1-3 in the axils of short lateral branchlets, [redacted], 2-5 mm. long, glabrous, the calyx lobes deltoid, acute, the pedicels 4-5 mm. long; stamens minute; drupes flattened-globose, 7-8 mm. in diameter, red, then black, bearing nutlets 3 mm. long, flattened ovate, wrinkled.

Occasional in boggy ground in meadows or along streams in the open 2500-3500 feet, rarely fruiting in the north of our range.

Ceanothus L.

Shrubs or small trees with simple alternate leaves, commonly with the midrib and 2 laterals prominent, stipules deciduous. Flowers small but showy en masse, in panicles at the ends of naked branches. Sepals 5, deciduous, white or bluish. Petals 5, long-clawed, ladle-shaped. Stamens 5. Ovary 3-chambered, immersed in the disc. Fruit 3-lobed, splitting at maturity into 3 nutlets.

Upper surface of leaves dull, not sticky; margin irregularly serrulate, the teeth blunt — 1. C. sanguineus

Upper surface of leaves glossy and sticky especially when young; margin evenly serrulate, each tooth tipped with a minute gland — 2. C. velutinus

1. C. sanguineus Pursh. Buckbrush. A rather diffuse shrub 1-3 m. tall, the branches often decumbent, the older bark brown, more or less striate longitudinally, branchlets green and glaucous, usually tinged with red; leaves thin, ovate, obtuse, rounded at the base, irregularly serrulate, the teeth blunt, upper surface dull, the lower pale and glaucous, hirtellous, petioles 1-2 cm. long, the stipules erect, acute 4-5 mm. long; flowers faintly fragrant, panicles oblong, 5-8 cm. long, borne on second year wood, the bracts broadly ovate, 4-5 mm. long, soon falling; corolla and calyx white, sometimes faintly tinged with rose, or bluish, scarcely 3 mm. in diameter on filiform flesh-colored pedicels 5 mm. long, 10 mm. in fruit, capsule 3-lobed, each lobe bearing a low ridge on the back, flattened above, varnished, 3.5-4 mm. broad; seeds shining, 2.5 mm. long.

Common throughout our region in open burns, usually at lower elevations; valuable as a forage for sheep; frequently flowers twice in the same season. Type taken by H. Lewis on Collins Cr.

2. C. velutinus Dougl. Sticky Laurel. A rigid shrub 1-2 m. tall, the numerous branches ascending, older bark dark brown, longitudinally striate, branchlets green, puberulent; leaves leathery, 4-8 cm. long, ovate, obtuse, rounded at the base and lightly cordate, very finely and regularly serrulate, teeth acute, tipped with a minute gland, the upper surface glossy, dark green, sticky, the lower pale, finely hairy, three veins very prominent; panicles 5-6 cm. long, borne towards the tips of first year branchlets and over-topping them, fragrant, bracts broadly ovate, 1-2 mm. long, soon falling; calyx and corolla white, about 4 mm. in diameter, the pedicels filiform, 5-8 mm. long, white, 10 mm. in fruit; capsules 3-lobed, each lobe bearing a low ridge on the back, flattened above, 4-5 mm. broad; seeds shining, 2.5 mm. long.

Frequent throughout our region in dry burns, occasionally in open woods with Pinus contorta, usually at lower elevations.

Eleagnaceae. Oleaster Family.

Shrubs or small trees with opposite entire leaves bearing a characteristic silvery or scurfy pubescence. Flowers in axillary clusters, perfect, polygamous or dioecious. Sepals 4, deciduous. Petals none. Stamens 4 or 8. Pistil 1, the ovary inferior. Fruit drupe-like, the ~~membranous~~ leathery achene being closely invested by the fleshy calyx-tube.

Shepherdia Nutt.

Flowers dioecious. Staminate flowers bearing eight stamens alternating with lobes of the disc. Pistillate flowers urn-shaped, with 4 small sepals, the mouth closed by an 8-lobed disc. Fruit drupe-like or berry-like, the leathery achene enclosed by the fleshy calyx-tube.

1. S. canadensis (L.) Nutt. Buffalo Berry. A dense much branched shrub 1-2 m. tall, the branches bronze-color, scurfy-pubescent with peltate fringed hairs, soon becoming longitudinally rugose and gray; leaves leathery, opposite, the blades 3-6 cm. long, 1.5-2.5 cm. wide, ovate, obtuse, rounded at the base, entire, green and nearly glabrous above, silvery below with the same type of hairs as on branches, a few of which are bronze-color, borne on petioles 5-10 mm. long; staminate flowers in axillary clusters, bronze-colored in the bud, due to the peltate hairs, globose, the segments 1.5-2 mm. long; fruit red, fleshy, oval, 6-9 mm. long, sprinkled with peltate hairs, the sepals persistent; achene flattened oval, 4-6 mm. long. (Lepargyrea canadensis Greene).

Abundant in Kootenai Valley. Margin of Lake Pend Oreille near Sandpoint in thickets, Epling 10412; Indian Cr., Ellison. The seeds are greedily eaten by Evening Grosbeaks and it is possible that the sporadic distribution of the shrubs in the southern Rocky Mts. is due to the southward wanderings of these birds.

Santalaceae. Sandalwood Family.

~~Trees, shrubs or~~ Herbs with alternate (or solitary) leaves without stipules. Flowers axillary or in terminal clusters, perfect; ~~or unisexual, monoecious or dioecious;~~ perianth 4-5-lobed, the lobes valvate in the bud; stamens as many as the lobes ~~and opposite them~~, inserted on a fleshy disc. Ovary inferior, 1-chambered; ovules 2-4. Fruit a drupe, ~~or nut with a single seed.~~

Comandra Nutt.

(partial root-parasites)

Perennial ~~herbs~~ from slender rootstocks, with alternate, entire leaves, ~~sometimes parasitic on the roots of other plants.~~ Flowers perfect, in terminal or axillary cymes or solitary in the axils. Calyx bell-shaped, 5-lobed, the lobes persistent on the fruit. Stamens 5, inserted on the calyx lobes between the lobes of the fleshy disc, anthers attached to the perianth segments by a tuft of hairs. Fruit a globose or ovoid drupe, rather dry or pulpy.

Leaves dark green, obtuse, 8-20 mm. wide; fruit bright red. 1. C. livida

Leaves pale yellowish green, acute, 1-6 mm. wide; fruit bluish with a bloom. 2. C. pallida

1. C. livida Richards. Stems slender, erect, 20-25 cm. tall, unbranched, several from a small crown at the apex of a slender creeping rootstock, scaly at the base; leaves 3-5 cm. long, oblong, lanceolate, obtuse, glabrous ~~on both surfaces~~ and somewhat glaucous, narrowed ~~at the base~~ to a petiole 2-4 mm. long; flowers in 1-3 ~~flowered~~ axillary cymes, the calyx lobes ovate, the tube not prolonged beyond the ovary, stamens and style shorter than the lobes; drupe ~~pulpy~~, 6 mm. in diameter, bright red, resembling a cherry, the seed nearly as large; peduncles 5-12 mm. long.

In gravelly soil near the margin of woods or in small openings, below 3000 feet; rare in our region and apparently confined to the north; a partial parasite reported on the roots of Picea, Pinus, Ledum, Salix, Betula, Alnus, Ribes and Lonicera.

2. C. pallida A. DC. Perennial herbs 15-30 cm. tall, with numerous ascending stems, the herbage glabrous, pale yellowish-green and rather glaucous, the leaves ascending, linear-lanceolate or oblong, 1-2 cm. long, 1.5-5 mm. wide, subsessile, those of the branches markedly narrower than those of the principal stems; cymes few-flowered, glaucous, the hypanthium 1-2.5 mm. long, the lobes of the perianth subequal acute, yellowish; fruit globose, about 5 mm. in diameter, becoming glaucous-blue, the persistent perianth conspicuous.

On a dry hillside near Bonners Ferry, Epling 10456.

Loranthaceae. Mistletoe Family.

Evergreen parasites on the stems of trees and shrubs, absorbing nourishment from the host by means of haustoria, true roots wanting. Stems branching, commonly forming clumps, swollen at the often conspicuous joints. Leaves in ours ~~opposite, leathery and low, frequently~~ reduced to small scales. Flowers dioecious, regular, greenish or yellowish-green, often minute. Calyx 2-5 lobed, the stamens subequal to and inserted upon them. Ovary inferior, 1-~~chambered~~. Fruit a small berry.

Arceuthobium Marsch-Bieb.

~~Plants~~ parasites on conifers, yellowish or greenish brown, their stems conspicuously jointed, appearing leafless, the leaves reduced to 2 minute encircling scales. Flowers crowded into short spikes. Staminate calyx 3-lobed, the anthers sessile, circular in outline, ~~[illegible]~~, Pistillate flowers subglobose, calyx 2-lobed, the lobes minute, ~~at the summit of the flower~~, Fruit a small watery green berry which dehisces explosively with some force by a circular rupture near the base, thus expelling the seed to a distance of several feet, whence the local name, "Snappers". (Razoumofskya Hoffm.)

0 Plants spreading evenly along the infected branch
1 frequently for several inches, 1-2 cm. tall, branching but little; on Pseudotsuga taxifolia — 1. A. Douglasii

0 Plants more or less tufted, localized on the infected
4 branch, commonly 3-5 cm. tall, branching

2 Branching freely, either dichotomously or with 3-4 branches from a single joint; stems commonly 1-1.5 mm. thick; staminate flowers nearly all terminal, pistillate opposite and terminal, neither crowded into spikes; on Pinus contorta — 2. A. americanum

2 Branching freely, the secondary branches, however, commonly short, frequently fertile, the main branch
6 readily discernible; stems commonly 1.5-3 mm. thick; flowers in spikes

4 Staminate flowers appearing as though overlapped;
8 on Pinus ponderosa (a form on Tsuga) — 3. A. campylopodum

4 Staminate flowers not appearing overlapped; on
3 Larix occidentalis — 4. A. laricis

1. A. Douglasii Engelm. ——→ Not tufted; spreading evenly along the infected branch for sometimes several inches; stems olivaceous, slender, 1-3 cm. tall, 1 mm. or less in diameter, branching but little, chiefly above; flowers crowded into short spikes 3-5 mm. long; fruit 4 mm. long. On Pseudotsuga taxifolia.

Hope, 3400 ft., Sandberg and Leiberg; Lake Pend Oreille, Sandberg 744.

2. A. americanum Nutt. ⟶ Stems slender, 6-10 cm. tall, forming dense tufts, commonly 1-1.5 mm. thick, greenish yellow, much branched, either dichotomously or with several branches spreading from a single node; staminate flowers nearly all terminal, paniculate, not crowded into spikes; pistillate flowers terminal and opposite; fruit 3.5-4 mm. long, reflexed at maturity. On Pinus contorta.

Kootenai Co., Sandberg 9358; Rathdrum, Sandberg, et al. [redacted] 892; Lake Coeur d'Alene, Henderson 4600;

3. A. campylopodum Engelm. ⟶ Densely tufted, stems stout, 6-10 cm. tall, 2-3 mm. thick, brownish yellow or olive brown, branching paniculately, the two secondary branches short, commonly terminating in an inflorescence; staminate flowers in a cylindrical imbricated spike 1-1.5 cm. long, 2-2.5 mm. thick, the flowers partially sheathed by the scales; pistillate flowers crowded at first, becoming looser in fruit; fruit 4-5 mm. long. On Pinus ponderosa, rarely on P. contorta where more destructive (fide Gill).

Spokane Bridge, Kootenai Co., Heller 925; near Ft. Coeur d'Alene, Watson 353.

A. campylopodum forma tsugensis (Rosendahl) Gill. A biological strain limited to western species of Tsuga, sometimes causing large "witches' brooms". —Clearwater Co., on T. heterophylla; Coeur d'Alene Mts., on T. Mertensiana (both fide Gill).

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4. A. laricis (Piper) St. John → Tufted, stems rather stout, 3-5 cm. tall, 1.5-2 mm. thick, yellowish or olive-brown, paniculately branched; flowers in short uneven spikes 5-8 mm. long, crowded but not imbricate, the scales acutish; fruit 3.5-4 mm. long. On Larix occidentalis.

Lower valley of Clark's Fork 2125 ft., Leiberg 1672; Upper Priest R., 5000 ft., Epling; Latah Co., Piper; Priest River, Weir 8373.

Shrubs or trees, rarely herbaceous, with alternate or opposite entire simple leaves, without stipules. Flowers perfect or unisexual, in head-like or umbellate clusters, small. Sepals 4 or 5. Petals 4 or 5, valvate in the bud. Stamens 4 or 5, inserted with the petals on an epigynous disc. Pistil 1, the ovary inferior, 1-2-chambered with 1 ovule in each chamber. Fruit a drupe.

Cornus (Tourn.) L.

Shrubs (C. canadensis herbaceous) with the characters of the family.

o Herbs with usually 6 leaves seemingly in a whorl — 1. C. canadensis

o Shrubs with opposite leaves — 2. C. stolonifera

Dwarf Cornel. Bunchberry.

1. C. canadensis L. A low herbaceous perennial with slender branching rootstocks, spreading and intricate, the bud scales 5-8 mm. long, ovate; stems erect, 10-20 cm. tall, 4-angled; leaves of the lower nodes opposite, 1-2 cm. long, those of the upper 3-4 cm. long, arranged in an apparent whorl of usually 6, sometimes 4, subtending the flower cluster, all elliptical or obovate, acute or acuminate, shortly petioled, entire, sparingly pubescent with appressed hairs; flowers in small cross-shaped cymes, forming a hemispherical cluster 1-1.5 cm. broad, elevated upon a peduncle 1-2 cm. long, subtended by 2 unequal pairs of whitish or whitish ovate, petal-like bracts 1-2 cm. long; sepals minute, broadly deltoid; petals white or purplish, 1.2 mm. long, erect and connivent, one or sometimes two produced into a soft erect prickle which acts as a trigger, which when disturbed releases the petals which become reflexed, the stamens flying smartly upward casting out the pollen in a tiny puff; ovary pubescent, the disc and style purple, the mature pedicels 3 mm. long; berry subglobose, 5-6 mm. in diameter, brilliant orange-red.

Throughout our region at intermediate elevations in shaded woods.

2. C. stolonifera. Michx. Dogwood. ~~habit~~ A shrub 1-4 m. tall, commonly dense and very leafy, the mature bark grey or light brown, rough, the fissures longitudinal, the younger bark green or red, glabrous or pubescent with appressed or spreading hairs; buds very slender, erect, reddish, pubescent, 5-12 mm. long; stems numerous, ascending, the lowermost commonly prostrate at the base, frequently rooting at the nodes; leaves 5-15 cm. long, narrowly or broadly elliptical, less often ovate, acute or acuminate, the margin entire, both surfaces commonly appressed-pubescent or woolly on the lower surface at least along the veins, the lower much paler, the petioles 1-2 cm. long; flowers in flat-topped clusters 4-6 cm. in diameter, ~~the branches of the inflorescence clothed similarly to the leaves~~; calyx lobes minute, triangular; petals lanceolate, 3.5-5 mm. long, slightly unequal, spreading, acute, the disc 1.5 mm. broad, the outermost flowers perfect, the stamens erect, the innermost frequently pistillate only; berry flattened-globose, 7-8 mm. in diameter, ivory-white to robins-egg blue, more or less pubescent, the seed flattened-rhombic, smooth, with usually 2 veins on each surface. (C. instolonea Nels.; C. pubescens Nutt.; C. occidentalis Cov.).

Throughout our range in stream bottoms, occasional in burns near streams; apparently a composite of two or more closely intergrading races. In a single thicket may be found numerous plants showing various degrees of pubescence and various combinations of pubescence and berry color. The form with spreading wool is known as C. pubescens; ~~I am~~ we are unable to distinguish it from C. occidentalis.

Araliaceae. (Vinsen) Family.

Perennial herbs, shrubs or trees with simple or compound leaves, alternate or whorled. Flowers small, sometimes showy en masse, perfect or polygamous, regular. Sepals 5, commonly small. Petals 5 on the margin of an epigynous disc, valvate or imbricate in bud. Stamens 5, alternate with the petals. Pistil 1, the ovary inferior, 2-5-chambered, bearing 2-5 styles. Fruit a berry or drupe.

- Spinose shrub, the leaves simple, palmately lobed;
  - Fruits bright red — 1. Oplopanax
- Perennial herbs, the solitary leaf ternate, each division then 3-5-foliolate; fruits blackish — 2. Aralia

1. Oplopanax. Dill.

Our species an armed shrub with alternate palmately lobed spinose leaves. Flowers greenish, in stout panicles. Calyx-teeth wanting. Petals 5, greenish, valvate. Ovary 1-chambered. Styles 2. Fruit laterally flattened.

1. O. horridum (Sm.) Miq. Devil's Club. A straggling shrub 1-3 m. tall, the stems ascending or decumbent, unbranched, straw-colored, conspicuously marked by leaf and bud-scale scars and armed with sharp spines 4-6 mm. long; bud-scales withering-persistent, 2-3 cm. long; leaves round in outline, 50-70 cm. in diameter, deeply cordate, palmately 7-lobed, the margin serrate, the teeth bristle-tipped, the veins armed, the petioles 20-30 cm. long, armed, clasping; flowers in a dense terminal pyramidal panicle, greenish, the segments ovate, 1.5 mm. long, deciduous, the petals erect, styles 2; fruit bright red, shiny, ripening [illegible]

2. Aralia (Tourn.) L. Ginseng.

Perennial herbs with solitary erect leaves borne on the creeping rootstock. Flowers perfect or polygamous, in a compound umbel. Sepals 5. Petals 5 imbricate, stamens 5. Ovary 5-chambered;styles 5. Drupe berry-like with usually 5 nutlets.

1. A. nudicaulis L. Wild Sarsaparilla. A low inconspicuous herb with a trailing woody often branched rootstock 5-6 mm. in diameter, the leaves solitary each year, commonly arising from short side branches, the petiole 15-20 cm. long, the blade ternate, then pinnate, each primary division bearing 3 or usually 5 leaflets, 6-9 cm. long, 3-5 cm. broad, oval or obovate, thin, green, glabrous, abruptly accuminate, the middle pair sessile, the lower pair and terminal leaflet on stalks 4-5 mm. long, the margins finely toothed; flowers in globose axillary compound umbels borne on peduncles about equal to the petioles, the primary rays 2-4 cm. long, the pedicels slender, about 1 cm. long, all thinly hirtellous, the pedicels especially so near the base of the ovary; calyx segments reflexed, 2 mm. long, the stamens erect, 2.5 mm. long; fruits purplish black, flattened-globose, 4-6 mm. in diameter, strongly ribbed.

In moist shaded woods at lower elevations.

Umbelliferae. Parsnip Family.

Anise-scented herbs with usually hollow stems and compound leaves (some basal leaves of Zizia are simple) the petioles of which are dilated into a flattened often sheathing base; the basal leaves are commonly long-petioled. Flowers mostly regular, small but showy en masse, white, yellow or purple, sometimes yellowish-green or bluish, arranged for the most part in compound umbels (sometimes simple in Sanicula; in dense globose heads in Eryngium). The proximal stouter branches of the umbel are termed primary rays, the distal are pedicels or secondary rays; both series may or may not be subtended by bractlets. The series subtending the primary umbel is termed the involucre; that subtending the pedicels or secondary umbels, involucels. Calyx tube completely joined to the ovary, the lobes or "teeth" either present but minute, usually deltoid, or completely wanting. Petals 5, usually with an incurved tip, deciduous. Stamens 5, borne upon a disc. Ovary wholly inferior, 2-chambered; styles 2, curving outward, united at the base and usually forming a 2-lobed cushion termed the stylopodium; this may be either nipple-shaped or flattened and plane. Fruit consists of two carpels which eventually separate from each other (or very tardily in Sanicula and Eryngium) but remain attached to and pendulous from a slender forked stalk (carpophore) which stands between them. The plane along which these carpels thus divide is known as the commissure, and they may be flattened either parallel to this plane or contrary to it or not at all. The carpels are said to be joined by their "faces" (the commissural face) and are -ribbed on the "back", the outer pair being called the lateral ribs, the inner 3 the dorsal ribs (or [illegible] termed the dorsal rib, more between, the intermediate ribs). All or some of the ribs may be augmented into wing. Between these ribs are the intercostal spaces or intervals. Traversing these intervals in various directions are one or more ducts termed oil-tubes, which may usually [illegible] or protuberances on the surface, or may be seen as [illegible], through the pericarp. These oil tubes [illegible] oil-cells (vittae). Per the 1-seed

Key for plants in flower.

0 1a. Flowers purple

2. Leaves twice ternate, the ultimate segments ovate, & 3-6 cm. long — 1. Osmorhiza

2. Leaves 4-5 times pinnately dissected into segments & 1-6 mm. long — 2. Leptotaenia

0 1b. Flowers yellow or greenish yellow ~~(see 3rd categ.)~~

2 Some basal leaves usually simple, cordate — 3. Zizia

2 All leaves more or less divided

4 Leaves palmately divided; ovaries covered with & hooked bristles — 4. Sanicula

4 Leaves ternately or pinnately divided

6 Umbels subtended by a series of oblanceolate
10 incised bracts 1-3 cm. long — 5. Angelica

6 Umbels subtended by a few subulate entire
10 bracts rarely more than 1 cm. long or none

8 Ultimate segments of the leaves
12 mostly more than 1 cm. broad

10 Leaves pinnate — 6. Pastinaca

10 Leaves ternate — 1. Osmorhiza

8 Ultimate segments of the leaves
12 mostly less than ~~5~~ cm. broad

10 Stout plants 60-90 cm. tall;
14 leaf segments scabrous on the lower surfaces with minute conical hairs — 2. Leptotaenia

10 Plants infrequently more than
14 60 cm. tall; leaf segments mostly smooth, or if hairy, softly so — 7. Lomatium ~~Cogswellia~~

0 1c. Flowers white (sometimes tinged with blue or pink)

2 Flowers and fruits in dense globose heads subtended by
6 sharp rigid bracts — 8. Eryngium ~~Eryngium~~

2 Flowers and fruits in usually compound umbels the rays
6 of which are 1-10 cm. long

4 Leaves divided into segments which are commonly less
8 than 2 mm. broad, linear or threadlike

6 Erect slender plants 60-90 cm. tall — 9. Carum

6 Low tufted plants with short usually subterranean
10 stems arising from globose tubers → (See also ~~Cogswellia~~ Geyeri and farinosa) — 10. Leibergia

Lomatium

4 Leaves divided into segments which are rarely .5 cm.
8 broad, usually 1-2 cm., in one species 15-20 cm.

6 Leaves once ternate, the leaflets 15-20 cm.
10 broad or more, cordate — 11. Heracleum

6 Leaves twice ternate or pinnate, the leaflets
10 never cordate

8 Ovaries hispid with ascending appressed
12 hairs — 1. Osmorhiza

8 Ovaries glabrous

10 Leaves once pinnate — 12. Sium

10 Leaves twice or thrice pinnate or
14 first ternate

12 Stylopodium flat

14 Calyx teeth .5 mm. long — 13. Cicuta

14 Calyx teeth wanting — 14. Ligusticum

12 Stylopodium conical or mammilate;
16 calyx teeth absent

14 Stems 1-2 m. tall; rootstocks not
18 covered with fibers — 5. Angelica

14 Stems infrequently more than 70 cm.
18 tall; rootstocks covered with fibers 1-10 cm. long, the remnants of old leaf bases. — 14. Ligusticum

Key for plants in fruit.

0 Fruit in dense globose heads subtended by a series of
4 sharp rigid bracts — 8. Eryngium

0 Fruit in usually compound umbels, the rays of which are
4 commonly 1-10 cm. long

2 Fruits covered with hooked bristles — 4. Sanicula

2 Fruits smooth or pubescent or hispid with straight hairs

4 Fruits very much flattened parallel to the commissure
8 which separates the two carpels, winged laterally and sometimes on the back

6 Fruits very flat and smooth, the dorsal ribs not
10 winged

8 Leaves ternately divided into leaflets
12 15-20 cm. broad or more — 11. Heracleum

6 Leaves with much smaller leaflets

10 Leaf segments mostly oval or elliptical,
14 1 cm. wide or more, sharply toothed — 6. Pastinaca

10 Leaf segments mostly linear or lanceolate,
14 usually .5 cm. wide or less; if 1 cm. wide, then entire

12 Lateral wings thin and chaffy, acute;
16 oil tubes appearing as brown lines usually solitary between each rib, 2-6 on the commissural face — 1. Lomatium

12 Lateral wings thickish and blunt; oil
16 tubes wanting or irregular and obscure, 2-3 between the ribs — 2. Leptotaenia

6 Fruits in which the dorsal ribs are distinctly
10 elevated and corky, often somewhat winged — 5. Angelica

4 Fruits not flat, convex and more or less ribbed or
8 winged

6 Some or all basal leaves simple, cordate, crenately
10 toothed — 3. Zizia

6 All leaves compound
8 Fruits linear-oblanceolate or linear-oblong,
12 10-20 mm. long, 3-5 times as long as broad, not at all winged

10 Low plants with short subterranean stems arising
14 from globose tubers; leaf segments thread-like — 10. Leibergia

10 Erect plants with evident stems arising
14 from elongated roots; leaf segments broad, toothed — 1. Osmorhiza

8 Fruits oval or subglobose, 2-6 mm. long, hardly
12 more than twice as long as broad, the ribs frequently winged

10 Leaf segments threadlike, 3-5, 2 mm. wide
14 or less, entire — 9. Carum

10 Leaf segments broad, numerous, rarely
14 less than 5 mm. wide, usually 1-2 cm., sharply toothed

12 Ribs sharp or winged — 14. Ligusticum

12 Ribs rounded on the back, corky

14 Leaves once pinnate; fruits longer
18 than broad — 12. Sium

14 Leaves twice pinnate; fruits broader
18 than long — 13. Cicuta

1. Osmorhiza Raf. Sweet Cicely.

Perennial herbs with short rootstocks and elongated fleshy tap roots. Herbage glabrous or thinly pubescent. Leaves ternately compound, the middle segments again ternate or ternately lobed, the leaflets toothed. Flowers in compound nearly or quite naked umbels, the petals white, purple or greenish yellow. Calyx teeth wanting. Fruit linear, obtuse or attenuate at the base, blunt or constricted to a short neck at the apex, bristly along the ribs at least in the lower parts. Stylopodium [redacted] or flattened. Oil tubes obsolete. Seed face more or less grooved.

nipple-shaped

0 Fruits and ovaries glabrous

1. O. occidentalis

0 Fruits and ovaries hispid with short appressed hairs, at least at the base

2 Stylopodia nipple-shaped

4 Fruits 11-12 mm. long, obtuse at the apex beneath
8 the stylopodia

2. O. obtusa

4 Fruits 15-20 mm. long, lightly narrowed at the apex
8 beneath the stylopodia to a neck about 1 mm. long

3. O. nuda

2 Stylopodia depressed, the top of the ovary and fruit
6 appearing truncate and plane

4. O. purpurea

1.

O. occidentalis (Nutt.) Torr. ——→ ~~depressed-hirsute with stout erect~~ stem erect, 1-1.5 m. tall, glabrous or sparingly hirsute in the upper parts; basal leaves on petioles 30-40 cm. long, not at all clasping the stem, the blades 15-20 cm. long, ternate, then at least the middle division again ternate, finely puberulent throughout, leaflets ovate-lanceolate, 5-7 cm. long, nearly sessile or the lower on petioles 3-8 mm. long, the margins serrate, stem leaves ~~similar on the upper twice ternate on shorter petioles, the uppermost only crenate~~, all more or less clasping the stem; umbels compound, the mature primary rays ~~divaricate-ascending~~, 4-8 cm. long, very slender, the pedicels about 10, 5-10 mm. long; petals greenish yellow, 2.5 mm. long, acuminate; stylopodia flattened, the top of the ovary appearing truncate; fruit wholly glabrous and shining, 12-15 mm. long, oblong, rounded at the base, not tapering, somewhat narrowed at the apex to a neck but blunt.

5-11

Common in subalpine meadows throughout our region, rarely in meadows as low as 3000 ft.; fruits have a pronounced flavor of anise.

2. (C. & R.)

O. obtusa Fern. ~~[illegible]~~ stems 30-50 cm. tall, glabrous or puberulent with spreading hairs; the internodes 5-20 cm. long; basal leaves commonly 2, their petioles slender, 5-12 cm. long, glabrous or puberulent, their blades deltoid in outline, 5-10 cm. broad, twice ternate, the secondary petioles 3-25 mm. long the leaflets ovate, 3-4 cm. long, coarsely toothed and usually deeply incised, the middle leaflets into 3, the lateral leaflets into 2 unequal segments, both surfaces glabrous or sparingly puberulent; ~~but smaller on shorter petioles;~~ the 2-4 double umbels, the primary rays 2-6, widely spreading, some even horizontal, 2-8 cm. long, unequal, the secondary rays 2-5, varying at maturity from 1-2.5 cm. long on the same plant; involucre a single subulate bract or none, involucels none or of a single bractlet; flowers dull white, the petals ovate-acuminate, .6 mm. long, the stamens .5 mm. tall, yellow; stylopodia greenish, mammilate, the styles curving outward, shorter than the stylopodia; fruits 11-12 mm. long, tapering in the lower third to a sharp point, blunt at the apex beneath the stylopodia, not narrowed into a neck, armed with appressed bristles chiefly on the veins.

Subalpine meadows and along streams near Fish Lake, 5000-6000 ft., Epling and Houck 9796. ~~Epling and Kempr~~

3. O. nuda Torrey. ~~[illegible]~~ stems 40-80 cm. tall, glabrous or sparingly hairy with spreading hairs, the internodes 15-40 cm. long; basal leaves commonly 2, their petioles slender, 10-20 cm. long, glabrous or hairy, their blades deltoid in outline, 5-15 cm. broad, twice ternate, ~~[illegible]~~ the leaflets ovate, 4-8 cm. long, coarsely toothed and usually deeply incised, the middle leaflets into 3, the lateral leaflets into two unequal segments, both surfaces glabrous or thinly pubescent; ~~[illegible]~~ the 2-3 double umbels, the primary rays 3-8, rather widely spreading, 3-9 cm. long, unequal, the secondary rays slender, varying at maturity as much as 5-20 mm. long on the same plant; involucre a single subulate bract or none, involucels none; flowers dull white, the petals ovate, acute, 1.2 mm. long; stamens yellow, .6 mm. tall; stylopodia yellowish, mammilate, the styles curving outward; usually longer than the stylopodium; fruits 1.5-2 cm. long, tapering in the lower third to a sharp point, narrowed at the apex to a short neck 1 mm. long, tipped by the persistent mammilate stylopodia, armed throughout with sharp appressed bristles.

Throughout our region in more or less shaded and moist places, commonly in muddy ground along small streams.

4.

O. purpurea (C. & R.) Suksd. ~~[illegible]~~ stems 40-80 cm. tall, naarly or quite glabrous, the internodes 15-40 cm. long; basal leaves commonly ~~[illegible]~~ petioles slender, 10-20 cm. long, glabrous or sparingly hairy, their blades deltoid in outline, 5-15 cm. broad, twice ternate, ~~[illegible]~~ the leaflets ovate, or deltoid ovate, 3-6 cm. long, coarsely toothed and usually deeply incised even to the base, the middle leaflets into 3, the lateral leaflets into 2 unequal segments, both surfaces glabrous or nearly so; ~~[illegible]~~ double umbels, the primary rays 3-8 cm. long, unequal, the secondary rays slender, varying at maturity from 1-3 cm. long ~~[illegible]~~; involucre a single subulate bract or none; involucels none; flowers purple, the petals ovate-acuminate, 1.5 mm. long; stamens greenish, .7 mm. tall; stylopodia purple, flattened, the top of the ovary appearing truncate and plane, the styles purple, slender, more or less parallel in the lower half, even erect; fruits 12-15 mm. long, bristly at the base with appressed hairs, the upper half glabrous, tapering in the lower third, narrowed at the apex to a short neck scarcely 1 mm. long, tipped by the persistent flattened stylopodia.

Frequent in shaded woods usually at higher elevations.

Roman Nose Mt., 5000 ft. ~~Epling~~; Moscow Mt., 4500 ft. ~~Epling~~; Upper Priest R., 2700 ft. Epling 7311

2. Leptotaenia Nutt.

Rather stout herbs with thick fleshy tap roots and finely dissected foliage. Flowers yellow or purple [illegible] in rather showy compound umbels. Primary umbels subtended by 1 or more subulate bracts [illegible], the umbellets by a similar smaller series, usually persistent, the rays of both unequal. Calyx teeth practically wanting. Fruit oval, strongly flattened parallel to the commissure, very smooth, the lateral ribs narrowly winged with a corky blunt wing, the dorsal ones faint. Oil tubes obscure, several in the intervals, irregular, often discontinuous, or wanting, mostly wanting on the commissural face.

Tr. → Flowers purple; fruits 8-10 mm. broad — 2. L. purpurea

→ Flowers yellow; fruits 6-7 mm. broad — 1. L. multifida

1. L. multifida Nutt. → [illegible] perennial herbs 60-90 cm. tall or more, [illegible]; stems glabrous, bearing 1 or 2 [illegible] leaves [illegible] chiefly in a basal tuft, 30-60 cm. long including the petiole, the blades pinnately 5-6 times dissected into numerous small blunt divisions 1-5 mm. long, commonly about 1 mm. broad, mostly glabrous on the upper surface, the lower especially on the margins and midrib scabrous with minute conical hairs; umbels subtended by a few persistent or deciduous subulate bracts 8-12 mm. long, the rays .5-5 cm. long in flower, unequal, increasing somewhat in fruit; pedicels 8-12 mm. long at maturity, rather slender, subtended by a series of subulate bractlets 3-6 mm. long, which are usually persistent; flowers yellow; fruits oval, very smooth, 10-12 mm. long at maturity, 6-7 mm. broad, the wing blunt, about 1 mm. broad, the ribs faint; oil tubes practically wanting.

Common on open hillsides at low elevations.

L. L. purpurea (S. Wats.) C. & R. Rather stout herb. 30-60 cm. tall; stems glabrous, bearing 1 or 2 leaves chiefly in a basal tuft, 20-40 cm. long, including the petiole, the blades 4-5 times pinnately dissected into numerous small blunt segments 1-6 mm. long, glabrous or sparingly scabrous on the margins and midvein beneath with small conical hairs; umbels subtended by a few persistent or deciduous subulate bracts 8-15 mm. long, the rays .5-5 cm. long in flower, unequal; pedicels 4-8 mm. long at maturity, slender, subtended by a series of subulate bractlets 5-10 mm. long, which are usually persistent; flowers purple; fruits rather broadly oval, 14-29 mm. long at maturity, 8-14 mm. broad, the wing blunt, about 1 mm. broad, the ribs faint; oil tubes irregular, 1-4 in the intervals, usually none on the commissural face.

Rocky ledges at intermediate elevations, apparently in the northern part of our region only. Snowy Top Mt., 5000 ft., Epling 8670; Lolo, Dunkle; Lake Pend Oreille, Leiberg 1152. Referred to this species with some hesitation, as, indeed, the genus is not yet well understood in our region. Notably for its broad carpels, it can scarcely be L. dissecta, a plant of lower regions.

L. foliosa (Hook.) C. & R. Leaves slightly puberulent; umbel 8-22-rayed; flowers yellow; fruit on very short pedicels, glaucous (ex char.). —Type, Geyer 517, "fertile slopes of the (Nez Perces) mts., near the snow line"; not seen; Lake Cho, Sandberg 117, not seen.

L. salmoniflora C. & R. Glabrous throughout; umbel 4-10-rayed; flowers salmon; fruit oblong, 10 mm. long (ex char.). —Type, Sandberg 24, "on basaltic rocks, near upper ferry, Clearwater R., above Lewiston", not seen.

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3. Zizia Koch.

Glabrous perennials with both simple and ternate leaves, the leaflets merely crenate, not lobed. Flowers yellow in terminal solitary naked umbels, the involucres of inconspicuous bractlets, the central flower of each umbel sessile. Calyx teeth present. Stylopodium wanting. Fruit ovoid, flattened contrary to the commissure, glabrous, lightly ribbed; oil tubes solitary in the intervals, 2 on the commissural face, which is plane.

1. Z cordata (Walt.) Koch. → An inconspicuous [redacted] herb 30-60 cm. tall, the basal leaves on petioles 6-30 cm. long, the blades entire, 3-8 cm. long, deeply cordate, or some three-foliolate, the leaflets sessile, the laterals obliquely ovate, the middle one oval, all very obtuse, [redacted] both surfaces [redacted] bright green, stem leaves [redacted], 3-5- 2-3 foliolate on dilated petioles 3-18 mm. long, the segments of the lower ovate, of the upper even obcuneate [redacted]; [redacted] umbels [redacted] puberulent at the base, the rays about 1 cm. long. euc

Infrequent in our region, occurring in open gravelly places usually in the lower valleys. →

→ Santa [redacted]; near Santianne Div., 2900 ft. [redacted]; Harvard, [redacted]

4. Sanicula (Tourn.)L. Sanicle.

Perennial herbs with palmately divided leaves. Flowers yellow or greenish, both perfect and staminate in irregularly compound or simple umbels, subtended by foliaceous involucres. Calyx teeth persistent. Fruit subglobose, the carpels remaining joined at maturity, ribless, covered with hooked bristles. Oil tubes irregularly distributed, numerous.

1. S. marilandica L. herbs 50-70 cm. tall, slender, glabrous throughout, the leaves few, the lower on petioles 5-15 cm. long, the upper nearly sessile, the blades kidney shaped in outline, with 5-7 segments, the outermost segments usually cut less deeply, all more or less obcuneate or rhomboidal, acute, attenuate below the middle, irregularly serrate; umbels simple or sometimes appearing compound, the clusters globose, burr-like, green, 8-9 mm. in diameter, bracts about 2 mm. long; fruits 2-2.2 mm. long, sessile, hooked bristles nearly as long as the fruit itself, the sterile flowers on slender pedicels 3 mm. long, the perianth-segments narrowly lanceolate, spine-tipped, 1 mm. long.

Rare in our region, occasional in the northern part in shaded moist woods. Interesting as an eastern species which reaches its northwesternmost stations in our region.

Lake Pend Oreille; Priest R. Exp. Sta.; Upper Priest R., 3000 ft.

5. Angelica L. Angelica.

Stout perennial herbs with short vertical rootstocks. Leaves compound, ternate, then pinnate or twice ternate, the ultimate segments ovate. Flowers white or yellowish, displayed in compound umbels with numerous rays, the secondary rays of which are quite short. Involucral bracts present and herbaceous or nearly or quite wanting; bractlets of the involucels small and inconspicuous or wanting. Calyx teeth nearly wanting. Stylopodium conic. Fruits flattened parallel to the commissure, oval, the lateral ribs strongly winged, the dorsal ones prominent or winged and rather corky. Oil-tubes 1-several in the intervals, several on the commissural side. Seed face plane or nearly so.

o Involucres ~~subtended by~~ consisting of a series of incised herbaceous bracts; flowers yellow 4 — 1. A. Dawsonii

o Involucres none or of a few subulate bracts; flowers white 4 — 2. A. Lyallii

1. A. Dawsonii S. Wats. The stout matted aromatic rootstocks covered with fibers from old leaf-bases; stems 80-120 cm. tall, glabrous; basal leaves on petioles 20-30 cm. long, the blades twice ternate, the leaflets 5-8 cm. long, narrowly ovate or ovate-lanceolate, mostly acute, obliquely rounded at the base, even cordate, margins serrate, the teeth spinulose-tipped, ciliolate, the upper surface glabrous, the lower hirtellous, the primary petiolules 3-6 cm. long, the secondary 4-20 mm. long, all more or less hirtellous, the petioles dilated at the base; flat topped or concave umbels yellow, subtended by oblanceolate subfoliar bracts incised at the apex, 1-3 cm. long, frequently wanting, the bractlets similar or entire, 8-12 mm. long, soon withering, the primary rays 2.5-3 cm. long, the pedicels 4-6 mm. long; fruits oblong-oval, 6 mm. long, 4 mm. wide, the ribs all winged, the lateral wings about twice the width of the others, the oil tubes 1-3 in the intervals.

Infrequent, occurring in subalpine meadows on north slopes; not seen in the northern part of our region.

Steven's Peak, 1970 m. Leiberg 145; Fish Lake Cr., 5000 ft. Ripley and Houck 950; Fish Lake, 6000 ft. Ripley and Houck 978; Traille R. Sandberg 900.

2. A. Lyallii S. Wats. ~~A perennial herb with vertical stout~~ Cap. rootstocks 5-8 cm. long, the stems 1-2 m. tall, glabrous and glaucous; leaves 3-4, the blades broadly triangular in outline, 15-35 cm. long, ternate, then once or twice pinnate, glabrous throughout, the leaflets 4-8 cm. long, ovate to lanceolate, frequently lobed near the base, on stalks 3-12 mm. long or sessile, the margins serrate, the teeth ovate, 2-3 mm. long, spinulose-tipped, the petioles of the upper leaves strongly dilated throughout, those of the lower only at the base; ~~flowers in~~ 1-3 rather showy convex compound umbels without bracts, the terminal largest, the mature rays 3-10 cm. long, the pedicels 3-6 mm. long bractlets of the involucels subulate or lanceolate, inconspicuous, few or wanting; corolla white, the clusters globose, the calyx teeth wanting, the ovary glabrous; fruit 6-9 mm. long, the lateral ribs strongly winged, the wing half the width of the body or more, the dorsal ribs corky, oil tubes commonly solitary in the intervals, 2-4 on the inner face.

usual

the

Frequent throughout our range in meadows and along moist trails or open streams, usually in the white pine type.

6. Pastinaca L. Parsnip.

Stout biennials with thick tap roots. Leaves pinnately compound, the leaflets again pinnate or pinnatifid, the ultimate segments elliptical or ovate. Umbels numerous. Calyx teeth wanting. Stylopodium flat. Fruit broadly oval, strongly flattened parallel to the commissure, the lateral ribs winged, the dorsal ones somewhat elevated. Oil tubes solitary in the intervals or rarely 2, 2 on the commissural face.

1. P. sativa L. [illegible] stems .5-1 m. tall or more, glabrous, angled; leaves 15-30 cm. long, oval in outline, the ultimate segments obovate, oval or elliptical, mostly 2-4 cm. long, sharply toothed, some more or less lobed; flowers yellow; fruit [illegible], 4.5-5 mm. long, glabrous, the oil tubes slender, appearing as brown streaks.

Occasional in waste places; escaped from cultivation.

Pritchard, Epling and Putnam.

mostly low subacaulescent

7. Lomatium Raf.

~~Cogswellia Spreng.~~

variously ternate-compound

herbs with perennial fleshy roots and short crowns, the former either globose, resembling corms or tubers, or elongated, the annual stems of short duration, often scarcely appearing above the ground, the leaves and scapes then appearing tufted. Leaves ~~various, either simply ternate, or once or twice ternate or ternate then pinnate,~~ or appearing 5-parted, the segments frequently filiform, sometimes small, the petioles more or less dilated and purplish at the base. Umbels compound, nearly or quite naked, the rays very unequal, the pedicels subtended by a series of small bractlets which may be joined at the base and are usually persistent. Flowers commonly yellow, rarely white or lavender with purple anthers. Calyx teeth wanting. Stylopodium wanting, the styles very slender. Fruit strongly flattened parallel to the commissure, oval or oblong, the carpels very thin, the lateral ribs winged, the wings sometimes as broad as the body but usually less, the dorsal ribs scarcely elevated or sometimes acutely ridged. Oil tubes solitary in the intervals, 2-6 on the commissural face. (Cogswellia Spreng.).

0 Plants with elongated more or less fleshy tap roots

2 Leaves several times dissected to form numerous small
6 slender segments 1-6 mm. long, .5-1 mm. wide

4 Entire plant cinereous-pubescent with short
8 curled hairs

1. L. C. macrocarpum

4 Plants green and essentially glabrous, the leaf
8 segments sometimes scabrous

6 Margins of the dilated petioles papery and white;
10 fruits 4-6 mm. long

2. L. Sandbergii

6 Margins of the dilated petioles thin or membranous,
10 but not papery; fruits 6-14 mm. long

4 Fruits tending to oblong, 3-4 mm. wide, with
12 narrow rather blunt wings scarcely .5 mm. wide 3. L. bicolor

8 Fruits tending to oval, 4-7 mm. wide, the wings
16 1-2 mm. wide

4. L. Grayi

2 Leaves twice or thrice ternate, or ternate and
6 pinnate or sometimes appearing 5-parted into linear, elliptical or oblanceolate segments 1-5 cm. long or more, 1-15 mm. wide

4 Ultimate segments blunt, mostly narrowed towards
8 the base

5. L. anomalum

4 Ultimate segments acute, tapering

6 Oil tubes mostly 2 on the commissural face;
12 plants of meadows at lower elevations.

6. L. triternatum

6 Oil tubes mostly 4 on the commissural face,
10 very slender; plants of subalpine meadows.

7. L. tenuissimum

0 Plants with short thick corm like roots which are
4 { more or less globose or turnip shaped, or may be a series of globose thickenings upon an otherwise slender root

2 Corolla white

4 Leaves prevailingly twice or thrice ternate;
8 { fruits with oil tubes several in the intervals, 4-6 on the commissural face

8. L. farinosum

4 Leaves prevailingly ternate or twice ternate,
8 { then pinnate or pinnatifid; fruits without oil tubes

9. L. Geyeri

2 Corolla yellow

4 Fruits oval, 9-10 mm. long, 4-5 mm. wide

10. L. Cous

4 Fruits oblong 8-12 mm. long, 2-2.5 mm. wide

11. L. ambigum

(Ho & A.) Co & R.
Le Le macrocarpum → Ashy perennials 20-40 cm. tall with several usually more or less sinuous ascending stems arising from a stout vertical root, the whole plant pubescent with fine short curling hairs, or some leaves glabrate; leaves rather numerous, tufted, chiefly basal, 5-10 cm. long, thrice pinnatifid, the ultimate segments 2-6 mm. long, usually less than 1 mm. wide, oblong or oblanceolate, blunt, the petioles shorter than the blades, gradually dilated downwards; flowers yellow, [redacted] in compound umbels, these commonly subtended by a linear or sometimes divided bract 1-2 cm. long, later deciduous, the primary rays .5-2 mm. long, increasing to 3-4.5 cm. in fruit, unequal, the pedicels 3-5 mm. long, subtended by a series of lanceolate bractlets 5-10 mm. long which are persistent and reflexed in age; fruits oval, glabrous, 10-18 mm. long, 5-8 mm. broad, the wings 1-2 mm. broad, the dorsal ribs lightly elevated, the intervals brown; oil tubes solitary in the intervals, commonly 6 on the commissural face.

Moscow, ~~Henderson~~; ~~Kootenai Co., Leiberg~~; Thatuna Hills, ~~Epling and Houck 922~~; Santa, ~~Epling, Wyckoff and Offord~~

C. & R.
2. Le Sandbergii → Cap. stems branching at the base, spreading, 15-25 cm. tall, arising from elongated slender roots 2-5 mm. in diameter; leaves with completely dilated petioles, their margins thin and papery, white, conspicuous, triternate, then pinnately dissected into blunt segments 1-5 mm. long, .5-1 mm. wide, minutely scabrous, dull; scapes 5-15 cm. long, ascending or curving upwards, minutely scabrous, the primary rays very unequal, 1-10 cm. long, mostly naked, the pedicels 3-6 mm. long, subtended by a few linear bractlets; fruit oval, 4-6 mm. long, sprinkled with minute glandular warts, dull and scabrous, the wings .3 mm. wide, the dorsal ribs not elevated; oil tubes 2-4 in the intervals, about 6 on the commissural face.

Frequent in dry ridges at higher elevations. The type, Sandberg 47, came "from "bare mountain tops along snowbanks" of Kootenai Co.

S. L. bicolor (S. [illegible] s.)C. & R. Glabrous tufted herbs with mostly subterranean stems and elongated roots, the leaves usually ternate, the divisions then 4 or 5 times divided into numerous slender segments 2-5 mm. long; scapes slender, ascending, 20-40 cm. tall; primary rays few, 1-7 cm. long, unequal, the pedicels subtended by a few awl-shaped bractlets; flowers yellow; fruits oblong-elliptical, 12-15 mm. long, 3-4 mm. wide, glabrous, the wings about .5 mm. wide, blunt, the dorsal ribs scarcely elevated; oil tubes solitary in the intervals, 2 on the commissural face.

Slopes of Wiessners Peak, Sandberg 596; Coeur d'Alene R., Leiberg 1631; Kootenai Co., Leiberg 1474.

S. L. Grayi C. & R. Herbs with stout roots, the stems principally subterranean; leaves few in a basal tuft, gray-green, 15-40 cm. long, pinnately 5-6 times dissected into numerous small divisions 2-3 mm. long, less than .5 mm. wide, glabrous except for the smallest divisions which may be minutely scabrous; scapes 10-30 cm. tall, glabrous, the umbels naked, their rays commonly 12-20, 2-12 cm. long at maturity, the pedicels 6-14 mm. long at maturity, subtended by a series of a few subulate bractlets 4-6 mm. long; flowers pale yellow, the calyx-teeth minute but present; fruits broadly oval, lightly notched at the base, commonly tinged with purple, 7-12 mm. long, 4-7 mm. wide, glabrous, the wings 1-2 mm. broad, the dorsal ribs not elevated or but lightly; oil tubes solitary in the intervals, commonly 4 on the commissural face, the outer pair about half as long as the carpel.

[illegible] hillsides in the prairie lands. Julietta; Viola; Clearwater Canyon.

Cap. 5. L. anomalum M. E. Jones. herbs 30-50 cm. tall, ordinarily arising from elongated fleshy roots, minutely puberulent; leaves few, ternate but often with an additional pair of smaller leaflets, thus appearing five parted, then irregularly twice pinnate, the ultimate segments pale green, oblanceolate or elliptical, 1-5 cm. long, 3-15 mm. wide, obtuse, entire, puberulent or glabrous, the dichotomously branching veins evident; scapes rather stout, 30-50 cm. tall, ascending, puberulent; rays of the primary umbel 1-10 cm. long, mostly naked, the petioles 2-3 mm. long in flower, 4-5 mm. in fruit, subtended by a few linear membranous bractlets; flowers yellow; fruit oval, glabrous, 12-14 mm. long, 5-6 mm. broad, the ribs lightly elevated, acute, the wings 1.5 mm. broad; oil tubes solitary in the intervals, dark brown, 2 on the commissural face, slender, lying near the stalk.

Dry rocky slopes. If this species is to relegated to a subordinate position under L. triternatum as in the view of Matthias, then the oldest name in the varietal Harrison, Epling and Offord; Clearwater canyon, Epling and Putnam, Sandberg 28; Geyer 411

category, var. puberulum Jepson, must be used.

6. L. triternatum (Pursh) C. & R. Erect herbs 30-70 cm. tall, arising from stout cylindrical roots 2-10 cm. thick, the stems puberulent with minute spreading hairs, the herbage pale and rather glaucous; leaves variable, mostly 15-30 cm. long, the lowermost sometimes simply ternate, the upper either twice ternate or appearing pinnate with five leaflets, often more or less completely twice ternate with a pair of auxiliary leaflets at the base of the blade thus appearing 5-parted, the leaflets prevailingly linear-lanceolate, 5-15 cm. long, 3-10 mm. wide, prevailingly acute, tapering at the base, often to a slender stipe, both surfaces glabrous or sparingly puberulent, the petioles subequal to the blades or shorter, abruptly dilated and membranous in the lower parts; flowers bright yellow, in compound usually naked umbels with very unequal rays .5-7 cm. long, puberulent, the mature pedicels 2-8 mm. long, subtended by a series of lanceolate subequal persistent bractlets; fruits 11-12 mm. long, 5 mm. wide, oval, but somewhat narrowed below the middle, glabrous, the wings 1-1.5 mm. wide, the dorsal ribs hardly elevated, the intervals brown; oil tubes solitary in the intervals, commonly 2 or sometimes 4 or irregularly 5 on the commissural face.

Frequent in dry meadows and open places at lower elevations in the southern part of our region.

7. L. tenuissimum (Geyer) Epling & Ewan nov. comb. Subacaulescent, glabrous, stems 2 or 3 from a vertical cylindrical root 2-3 mm. thick; leaves scarious and dilated at the base, simply pinnate with five remote linear segments or ternate and sub-pinnate, the segments 1-2 mm. wide, 1.5-5 cm. long; scapes 15-25 cm. tall, slender, rays 5-8, 1-7 cm. long; flowers yellow, the clusters about 4 mm. in diameter, the bracts of the involucels glabrous, lanceolate, about equal to the flowers; fruits oval, purplish when young, glabrous, 10-14 mm. long, 4-5 mm. wide, the wings .7-1 mm. wide, thin; oil tubes solitary in the intervals, usually 4 (sometimes 2) on the commissural face, these very slender, the outer pair usually incomplete. (Peucedanum tenuissimum Geyer).

In the wet swampy small prairies (high cold regions) surrounded by high mountains, Coeur d'Alene country, Geyer 302 (type, Brit. Mus.); Fish Lake, 6000 ft., Epling & Houck 9821. Differs from L. ambiguum, which occupies a different ecologic position, in its carpel characters.

8. L. farinosum (Geyer) C. & R. Stems mostly subterranean, 10-30 cm. tall, arising from globose tubers 1-1.5 cm. in diameter; leaves chiefly in a basal tuft, 10-15 cm. long, commonly twice or thrice ternate, the ultimate segments 1-5 cm. long, linear or filiform, 1-3 mm. wide, acute, glabrous and rather glaucous; petioles mostly dilated and membranous, clasping, scapes few, glabrous, the umbels naked, the rays 1-3 cm. long at maturity, the pedicels subtended by a series of subulate green bractlets 3-5 mm. long; flowers white or purplish in the bud, with purple anthers; fruits narrowly oblong, glabrous, 5-8 mm. long, 2-3 mm. broad, the wings narrow; oil tubes several in the intervals, 4-6 on the commissural face.

Confined to eastern Wash. and adjacent Idaho. Latah Co., Gail; "on an isolated rock in the Coeur d'Alene Mts. on wet clay", Geyer 325 (type).

9. L. Geyeri (S. Wats.) C. & R. Biscuit Root. ~~Low perennials with~~ stems ~~short and mostly subterranean,~~ arising from more or less globose tubers 1-1.5 cm. in diameter, often several on the same root; leaves several, in a basal tuft, 10-20 cm. long, glabrous, ternate, or sometimes twice ternate, then pinnate or pinnatifid, the ultimate segments linear, of variable length, mostly .5-2 cm. long, 1-1.5 mm. wide, tipped with a small callus, the petioles dilated and membranous, clasping; scapes 10-15 cm. tall, glabrous, the umbels naked, the rays unequal .5-3 cm. long, the umbellets subtended by a series of lanceolate green or purplish bractlets 2-4 mm. long; flowers white, with purple anthers; fruits oblong, glabrous, 8-10 mm. long, 4.5-4 mm. broad, the wings narrow, thin; oil tubes none. (Peucedanum ambiguum sensu Hook., not Nutt.).

Hope, Dunkle; Lake Pend Oreille, Leiberg 1460. Geyer's coll. (458) came from "sandy woods and plains" of Upper Columbia R.

10. L. Cous (S. Wats.) C. & R. Cous. Stems arising from thickened elongate tubers which often branch, parsnip-or radish-shaped, not globose, 1-4 cm. long, .5-2 cm. thick, black; leaves several in a basal tuft, 10-25 cm. long, ternate, then usually twice pinnate, the ultimate segments .5-20 mm. long, 1.5-2.5 mm. broad, tapering both ways from the middle but blunt, glabrous; scapes ascending, glabrous, 10-25 cm. tall, the umbels naked, their primary rays very unequal, .5-6 cm. long, the umbellets subtended by a series of lanceolate green or purplish bracts 3-5 mm. long which are somewhat united at the base, persistent; mature pedicels 2-3 mm. long; flowers yellow; fruits broadly oval, 9-10 mm. long, 4-5 mm. wide, glabrous, the wings 1-1.2 mm. broad, the dorsal ribs acutely elevated; oil tubes solitary in the intervals, commonly 6 on the commissural face, broad and nearly confluent.

Slopes of the Clearwater and tributary canyons in thin soil. The roots were a source of food for the Indians. L. circumdatum (Wats.) C. & R., usually distinguished from L. Cous by its glabrous rather than puberulent or "granular-roughened" carpels was believed doubtfully distinct by Piper (1906) and later not retained (1914). It is at least not recognizable in our region.

2 or 3

11.

L. um

[redacted] ambigu[redacted] (Nutt.) [redacted] C. & R. [redacted] herbs with stout vertical roots which are usually tuberous and turnip shaped, sometimes having [redacted] tuberous swellings, the stems 15-60 cm. tall, glabrous; leaves few, 5-20 cm. long, once or twice ternate or apparently pinnate, the ultimate segments linear or linear-oblanceolate, obtuse, narrowed toward the base, commonly 1-3 mm. wide, quite variable in length, the petioles mostly dilated and membranous; flowers yellow, [redacted] in compound umbels the rays of which are very unequal, 1-10 cm. long, rather widely spreading, naked or sometimes subtended by a subfoliar bract, the mature pedicels mostly 8-10 mm. long, naked; fruits oblong, 8-12 mm. long, 2-2.5 mm. wide, the wing scarcely .5 mm. wide, the dorsal ribs scarcely elevated, the intervals brown; oil tubes solitary in the intervals, 2 very broad ones on the commissural face.

Dry gravelly banks of streams or lakes at low elevations.

8. Eryngium (Tourn.) L. Eryngo.

Glabrous and glaucous perennials with more or less leathery somewhat spinose leaves. Flowers in dense composite-like globose or ovoid heads subtended by an involucre of rigid bracts, more or less spinose, each flower also subtended by a spinose bract. Sepals present, well developed, persistent. Stylopodium wanting. Fruit ovoid, densely covered with overlapping scales or tubercles; ribs none. Oil tubes usually 3 on the back and 2 on the commissural face.

1. E. articulatum Cook. Stems 30-50 cm. tall; the early leaves columnar and pointed, 6-10 cm. long, frequently without a blade, the blades when present variable, usually lanceolate, 4-7 cm. long, the cauline sessile or short-petiolate or elliptical, thickish, tapering to a petiole or subsessile, sharply toothed or subspinose, the uppermost opposite; heads at first subglobose, becoming ovoid, 1.5 cm. tall, subtended by an involucre of numerous or few divaricate bracts 1-1.5 cm. long; each flower subtended by a rigid oblong-lanceolate cuspidate, entire or with 1-2 lateral spines near the middle, bluish in flower; corolla bluish or white, sepals lanceolate, 3-3.5 mm. long.

Marshes along lake shores or streams, at first somewhat rushlike and submersed, subsequently Isoetes, at length emersed, branching above with ascending rushes. Lake Coeur d'Alene and Spokane R., Leiberg 583 (type); Paradise Ridge.

9. C[illegible]rum L. Squaw-Root.

[illegible] or [illegible] herbs with slender grass-like stems and fleshy tuber-like roots. Leaves ternate or pinnatifid, the segments linear. Flowers white, numerous. Involucres of a few linear or subulate bracts or wanting; involucels of similar smaller bractlets. Calyx-teeth present and persistent. Stylopodium conic. Fruit lightly flattened contrary to the commissure, thus seminiferous oval in outline, the individual carpels oblong, smooth, slightly ribbed. Oil tubes solitary in the intervals, 2 on the commissural face.

1. C. Fairmanni ([illegible]) Gray. Erect stiffish slender herbs 60-90 cm. tall, the stems glabrous, nearly naked at maturity; leaves few, soon withering, the petioles dilated but narrow, 5-10 cm. long, the blades ternately or pinnately divided into 3-5 thriplike linear segments 3-10 cm. long; the several, axillary, umbels naked or subtended by 1-2 subulate or linear bractlets, the rays very slender, 1-10, each 1-[illegible] cm. long, the pedicels about 5 mm. long at maturity; fruits scarcely 4 mm. long, the calyx-teeth persistent.

Frequent in the grassland along roadways and in meadows where showy for their white umbels, and in the Clearwater Canyon near Orofino; according to many the Nez Perce Indians use the tubers like potatoes; they are delicious and grow to the size of a finger in rich soil. Clarkia; Moscow; Lake Pend Oreille.

Mathias (Brittonia 2: 345) has united Carum and Bulophus under the generic name Perideridia. Until further evidence is at hand it seems evident to [illegible] a well-founded concept in a highly [illegible] group in which differences are often difficult to establish.

10. Leibergia C. & R.

Low evanescent inconspicuous herbs without proper stems, arising from deeply seated globose tubers. Leaves basal, soon withering, ternately-then twice-pinnately divided into linear whip-like segments, glabrous. Flowers white, in umbels with noticeably unequal rays; involucres none; involucels of small bractlets; calyx-teeth wanting. Fruit-cluster suggesting Osmorhiza, each carpel lightly flattened contrary to the commissure, linear, tapering at both ends, glabrous, lightly ribbed. Oil tubes solitary in each interval, 2 on the commisural face. A genus of only the following narrow endemic:

1. L. orogenioides C. & R. Leaves 1 or 2, the petioles about as long as the blade or shorter, more or less dilated, the segments .5-1.5 mm. wide, .5-3 cm. long, glabrous; flowering stem 15-25 cm. tall, terminating in a spreading naked umbel with 5-15 rays, 2-6 cm. long, the pedicels 1-2 mm. long; fruits 10-15 mm. long. (Lomatium orogenioides (C. & R.) Mathias).

Leiberg writes (Contr. U. S. Nat. Herb. 7: 109) that "at the time of flowering (June) it quite hides all other species" and that it prefers basaltic soils of the lower white pine areas. From Leibergia the genus Lomatium, in general of a very different growth form, differs in having the carpels winged laterally. In Leibergia such lateral wings are represented merely by ribs. Santa, on an open gravelly slope; Santiamc Cr. bottoms, 2000 ft., Leiberg, 1897 (type).

11. Heracleum L. Cow Parsnip.

Ours coarse stout perennials with thick horizontal rootstocks. Leaves very large, ternate, the leaflets broad, more or less incised, the petioles strongly inflated and sheathing. Flowers white in large showy compound umbels, subtended by an herbaceous deciduous involucre and involucels of numerous small bractlets. Petals unequal, those of the outermost umbels larger than the inner. Calyx-teeth nearly or quite wanting. Fruits broadly oval or obovate, strongly flattened parallel to the commissure, the lateral ribs narrowly winged, the dorsal ribs not prominent. Oil tubes solitary in the intervals, about half as long as the carpels, 2-4 on the commissural face.

1. H. lanatum Michx. Commonly as tall as a man or more, the stems hispid with spreading hairs; leaflets 15-35 cm. in diameter, cordate at the base, irregularly and obliquely lobed, the middle leaflets clearly cut to the middle into three primary segments, the lobes ovate, lightly acuminate, sharply serrate, the lower surface thinly woolly; umbels 20-30 cm. in diameter, flat-topped at maturity, primary rays 5-15 cm. long, woolly, the pedicels 1-2 cm. long; petals bifid; fruits 5-12 mm. long, 3-8 mm. broad, pubescent, stylopodium conspicuous, the styles persistent.

Frequent in boggy meadows and river bottoms at low elevations growing usually in rank thickets; host to a varied and extensive assemblage of insect visitors. Upper Priest R., 3600 ft., Piper 8638.

18. Sium L. Water Parsnip.

Perennial herbs with stout stems and pinnate leaves and sharply toothed leaflets. Flowers white, [illegible] in compound umbels, subtended by both bracts and bractlets. Calyx teeth minute. Stylopodia flattened, with very short styles. Fruit flattened contrary to the commissure, and thus seen, oval in outline, the carpels each provided with 5 corky equal ribs, blunt on the back, oil tubes 1-3 in the intervals, but never solitary in all the intervals, several on the commissural face.

1. S. cicutaefolium Gmelin. ——→ Erect glabrous herbs 60-100 cm. tall, the internodes mostly 15-30 cm. long, clasping the stem, the blades ovate in outline, 15-25 cm. long, [illegible] with commonly 9-13 linear-oblong segments 4-8 cm. long, 6-12 mm. wide, acute at both ends, sharply serrate, the teeth 1-2 mm. tall, spreading; stem leaves [illegible] with some leaflets frequently parted nearly to the base, appearing as two; umbels [illegible] usually 2 or more, subtended by green bracts commonly lanceolate, 5-12 mm. long, the pedicels subtended by similar smaller bractlets, the primary rays of the umbel 15-30, 3-4 cm. long, the pedicels 2-6 mm. long at maturity; [illegible] fruits 3 mm. long, oval in outline, viewed contrary to the commissure, each carpel bearing 5 equal corky white ribs, the intervals brown, the commissural face flat, becoming convave when dry.

Frequent in lake lagoons or in muddy meadows at low elevations.

13. Cicuta L. Water Hemlock.

Glabrous perennials with globose rootstocks which are markedly chambered by cross partitions. Leaves irregularly twice pinnate, or some cnce pinnate, the segments oval or elliptical. Umbels subtended by 1 or more small subulate bracts or naked. Flowers white, the calyx teeth present, stylopodium flat, deltoid. Fruit small, subglobose, flattened contrary to the commissure, the ribs subequal, rounded on the back, corky. Oil tubes solitary in the intervals, 2 on the commissural face.

1. C. vagans Greene. [illegible] branching herbs 60-90 cm. tall, the stems arising from a short horizontal or vertical usually bulbous rootstock 1-3 cm. in diameter [illegible]; basal leaves 30-60 cm. long, including the petiole which is dilated only at the base, the blades mostly ovate in outline, 20-30 cm. long, [illegible] the lowermost segments with 3-5 leaflets, the uppermost leaflets frequently incised, all leaflets narrowly ovate or elliptical, 3-7 cm. long, 1.5-3 cm. broad, sharply and regularly toothed, sessile; umbels with 15-20 rays, subtended by an often solitary bract 5-10 mm. long, the rays 1-3 cm. long in flower, [illegible] in fruit, [illegible] a strongly convex or subglobose cluster [illegible] forming [illegible]; pedicels 3-6 mm. long in fruit; [illegible] calyx teeth very acute, membranous, .5-.7 mm. long, the petals 1.5 mm. in diameter; fruits hardly more than 2 mm. tall, somewhat broader, each carpel strongly convex, the ribs about twice as broad as the brownish oil tubes in the intervals.

Frequent in lake embayments or marshes or in meadows along streams at lower elevations. The roots and bulbous rootstocks are violently poisons to animals eating them. In our region any losses would probably come from pastured stock at low elevations. The chambered rootstock permits the plant to be readily distinguished from other similar species with which it might be growing. Type taken at estuary of Lake Pend Oreille by Greene on August 9, 1899.

14. Ligusticum L.

Perennial herbs with fragrant roots, the crowns covered with fibers from old leaf-bases. Leaves glabrous, broadly deltoid or pentagonal in outline, once or twice ternate, then variously pinnate, the segments being either rhombic-ovate, merely toothed, distinct, or irregularly confluent and variously incised and toothed; petioles commonly as long as the blade or longer. Umbels several, long-peduncled, mostly naked, the pedicels naked or nearly so. Flowers white; calyx-teeth minute or wanting. Fruit oval, the wings acutely raised into a narrow wing; oil tubes 2-6 in the intervals, 4-8 on the commissural face; stylopodia depressed or mammilate.

- Leaves commonly twice ternate, then pinnate with distinct 4 rhombic-ovate bluntly-toothed segments — 1. L. verticillatum
- Leaves ternate, then pinnately dissected into 4 { mostly lanceolate segments which are more or less confluent — 2. L. Canbyi

1. L. verticillatum (Geyer) C. & R. Stems 50-70 cm. tall; basal leaves ample, the earlier subsessile, on short inflated petioles, the later on pedicels as long as the blade, expanded only at the base, the blades once or twice ternate, then pinnate into rhomboid-ovate segments 3-8 cm. long, obtuse, narrowed and subentire below the middle, toothed above, the teeth ovate, acuminate, coarse, both surfaces glabrous, the lower paler; umbels several, the principal one terminal, on peduncles 15-30 cm. long, the rays subequal, 2-3 cm. long in flower, becoming 9 cm. in fruit, without involucral bracts, the pedicels unequal, 2-4 mm. long, increasing to as much as 15 mm. in fruit; fruit oval, 5-7 mm. long, the ribs acutely winged, not seen at maturity, the stylopodia thickish, depressed.

Confined to our region; Geyer's type taken in 1841 along "shady grassy borders of pine woods on the high plains of the Nez Perce Indians". Craig Mts.; Orogrande Cr., 4000 ft.; Cole Mt., 5000 ft.; Bungalow R. S., 3000 ft.

Canbyi

2. L. [redacted] C. & R. [redacted]

Cap. [redacted] stems 40-120 cm. tall, glabrous or puberulent at the base, the basal leaves on slender petioles 10-30 cm. long, their blades 8-35 cm. broad, broadly deltoid or pentagonal in outline, ternate, then again pinnate the resulting segments sometimes pinnatifid nearly to the midrib or variously incised, the ultimate segment irregularly toothed with salient acute teeth or entire, themselves often acute, both surfaces glabrous and dark green, the lower paler; [redacted] umbels several, the terminal largest, on peduncles 10-30 cm. long, the rays 1-2 cm. long in flower, increasing to 2-[redacted]5 cm. in fruit, naked or subtended by one or two small lanceolate bractlets, the pedicels 1-3 mm. long, slender, increasing somewhat in fruit, nearly or quite naked; [redacted] fruits oval, 3.5-6 mm. long, the ribs sharply winged.

Common throughout our region, occurring in meadows and along streams. [redacted] L. Leibergii C. & R., a synonym, the type from Traille R. Basin, was distinguished in the key upon its leaf characters by its authors.

Fumariaceae. Fumitory Family.

Glabrous herbs with watery juice. Leaves commonly alternate, compound and much dissected. Flowers showy, irregular. Sepals 2, scale-like. Petals 4, in two pairs, the outer larger, with spreading tips, one or both saccate or spurred at the base, the inner joined at the apex by calloused tips, united over and sheathing the anthers and stigma. Stamens 6, in two sets opposite the outer petals, the filaments of each often united; middle anther of each set 2-chambered, the lateral ones 1-chambered. Ovary superior, 1-chambered. Fruit a capsule dehiscing by two valves (in ours), or indehiscent; placentae 2, parietal.

o Outer petals alike, 2-spurred or 2-saccate — 1. Dicentra

o Outer petals unlike, only 1 being spurred — 2. Corydalis

1. Dicentra Bernh.

Flowers in racemes or panicles, rarely solitary. Petals lightly joined to form a flattened, heart-shaped, 2-spurred or saccate corolla, deciduous or withering persistent. Filaments lightly joined, in two sets, more or less dilated. Stigma 2-crested.

o Flowers several in a raceme, the inner petals mostly 4 concealed by the outer pair — 1. D. cucullaria

o Flowers solitary or two, the inner petals exposed by 4 the widely recurving outer pair — 2. D. uniflora

1. D. cucullaria (L.) Bernh. Dutchman's Breeches. Scape and leaves erect, from a small rootstock bearing several globose tubers; the whole structure bulb-like; leaves on petioles 10-25 cm. long, the blades ovate in outline, 8-12 cm. long, twice ternately divided, these divisions again bipinnately parted and lobed, the ultimate segments 6-12 mm. long, 1-3 mm. wide, linear-oblanceolate, obtuse mucronate, both surfaces glabrous; flowers pinkish and yellow, several in a raceme, 6-8 cm. long, on a scape subequal to the leaves or longer, pedicels 6-7 mm. long, subtended by thin ovate bracts 1-3 mm. long, bearing a pair of similar nearly opposite bracts above the middle; corolla flattened, triangular-obcordate, the sepals membranous, ovate, 2-3 mm. long, outer petals 14-20 mm. long, saccate at the base, the spreading tips 4 mm. long, inner petals exserted about 3 mm.; capsule 1-1.5 cm. long, tipped by the slender persistent style; seeds lenticular, 2 mm. in diameter, crested, very black and shiny. → (Bicuculla occidentalis Rydb.).

Rare in our region. →

not ff → Shady woods, 650 m. → S. end of Lake Pend Oreille, 2120 ft., Leiberg; Julietta, among rocks under brush, Aldrich; Henderson.

Steer's Head

2. D. uniflora Kellogg. Scapes erect, 3-8 cm. tall, arising from a small cluster of tubers; leaves 5-6 cm. long, pinnate, the divisions ovate in outline, pinnately once or twice lobed, the lobes obtuse; flowers pinkish, usually solitary on the scape, less often two, subtended by one or two small bracts; corolla flattened, triangular in outline, the sepals ovate, membranous, 2-2.5 mm. long, the outer petals 12-15 mm. long, saccate at the base, the upper portion oblanceolate, recurved to below the middle at maturity, leaving the inner petals wholly exposed at maturity, these truncate near the base and narrowed to a short claw; fruit not seen.

l.c. → Summit of Moscow Mt., Henderson. The only other northern station for this distinctive species is Mt. Adams in Washington.

Boggy ground

2. Corydalis (Dill.) Medic.

[redacted] Flowers in racemes, or panicles. Corolla with only one petal spurred, all connivent, forming a more or less trumpet-shaped flower. Filaments united into two sets, the upper provided with a linear process which extends into the spur. [redacted]

Flowers purplish; plants commonly 1 m. tall — 1. C. Cusickii

Flowers golden yellow; plants 25-40 cm. tall — 2. C. aurea

1. C. Cusickii Wats. Stems stout and fistulous, from a very deep taproot, 1 m. or more tall; leaves 3-4 times pinnately divided, the blades 30-60 cm. long, or more, the leaflets alternate, 1-2.5 cm. long, elliptical or oval, acute or obtuse, lightly mucronate, shortly petiolate or sessile, glabrous on both surfaces; flowers in dense terminal racemes or panicles, the individual racemes 5-15 cm. long, 3-4 cm. wide, many-flowered, bracts subfoliar, oblanceolate, or lanceolate, 1 cm. long or less, pedicels 4-5 mm. long; sepals minute, soon deciduous, 1-2 mm. long, ovate, toothed; upper petal 20-22 mm. long, including the spur, lightly hooded at the apex, white, the spur stout, 10-12 cm. long, the lower petal lightly saccate at the base; inner petals similar, fiddle-shaped, joined at the purple 3-ribbed tip, the blades 6-7 mm. long, abruptly clawed, the claw 4 mm. long; stamens united in two sets, anthers .8 mm. long, linear, filaments united nearly throughout and dilated, 7 mm. long, the upper prolonged into a linear appendage of subequal length, which projects into the spur; ovary cylindrical, 4 mm. long, the style abruptly bent, subequal, the stigma flattened, 1.3 mm. long, irregularly 5-lobed; capsule 10-12 mm. long, clavate, torulose, elastically dehiscent from the apex downward; seeds black and shining, reniform, 2 mm. in diameter. (Capnoides Cusickii Heller).

Rare, but locally abundant, apparently occurring only in the southern part of our region along shaded streams; abundant on Gold Creek near Elk River. St. Joe-Clearwater Divide, Leiberg 1190; shaded alluvial stream bottom, Orogrande Cr., 3000 ft., Epling and Houck 9358; Lolo trail, Watson; Gold Cr., Epling.

2. C. aurea Willd. Glabrous annual or biennial herbs with glaucous foliage, 25-40 cm. tall, stems several, ascending, the internodes 5-25 cm. long; leaf blades 3-8 cm. long, triangular in outline, 2-3 times pinnate, the ultimate segments 1-3 mm. wide, obtuse, the petioles as long as the blades or longer; flowers few in axillary racemes 1-1.5 cm. long, subtended by greenish membranous bracts 4-5 mm. long; flowers yellow, 11-12 mm. long, the spur 3-4 mm. long, curving downward, rounded and blunt, the unspurred petal 8-8.5 mm. long, the inner 7-7.5 mm. long, the claw half as long as the blade; pods about 2 cm. long, tipped by the acuminate style, moniliform; seeds reniform, 1.7 mm. long, very black and shining. (Capnoides aureum Ktze.).

Near Juliotta, Putnam .

Capparidaceae. Caper Family.

Herbs with alternate, mostly palmate leaves. Flowers perfect, commonly racemose. Sepals 4, distinct or lightly united at the base. Petals 4, more or less clawed. Stamens commonly 6, all equal. Ovary superior, 1-chambered. Fruit a pod with 2 parietal placentae and no partition, dehiscent in our species. Seeds kidney-shaped.

Cleome L.

Tall erect annuals. Leaves palmately trifoliolate, petioled. Flowers in terminal racemes, showy. Petals subequal, shortly clawed. Anthers linear, becoming coiled. Receptacle produced into an erect appendage between the petals and stamens. Ovary shortly stalked. Pods linear-oblong, many-seeded.

1. C. serrulata Pursh. Stinking Clover. Annual, 50-60 cm. tall, with stems mostly simple; leaflets narrowly elliptical or elliptical-oblong, about 3 cm. long, acute at both ends, entire, both surfaces glabrous or minutely puberulent, the lower paler; flowers on filiform peduncles 1-2 cm. long; sepals broadly ovate, 2.5 mm. long, shortly aristate, joined below the middle; petals rose-colored, ovate, about 1 cm. long; appendage of the receptacle ligulate, sometimes with 1 or 2 teeth, about 1/3-1/2 the length of the petals; stamens 6 (sometimes with 1 or 2 smaller), filaments filiform, anthers exserted, ovary on a stipe about 1 mm. long, elongating rapidly after anthesis; pod 4-6 cm. long, 3-3.5 mm. wide, flattened, acute at both ends, the stipe subequal to the pedicel; seeds 3-4 mm. in diameter. (Peritomum serrulatum DC.).

Scarcely proper to our region, an entrant from the sagebrush plains. ——→

not ——→ Sandy soil, S. end of Lake Pend Oreille, Sandberg, et al.

Cruciferae. Mustard Family.

Herbs with alternate and basal leaves, commonly pinnate or pinnatifid, sometimes finely dissected, sometimes entire. Flowers perfect, regular, racemose or paniculate, without subtending bracts. Sepals 4, erect or spreading at anthesis, often colored like the petals. Petals 4, commonly with (a) rotund or obovate blades tapering to a narrow claw, the blades exserted or included within the sepals, white, yellow, or purple. Stamens normally 6, in 2 sets, the inner 4 longest. Ovary superior, 2-chambered ~~-locular.~~ Fruits various, usually dehiscent by the separation of either ~~into~~ 2 valves, leaving an erect membranous partition (replum), or indehiscent, plump or flattened, if flattened, then flattened either parallel to or contrary ~~with~~ the partition.

Key for plants in fruit

0 1a. Fruit indehiscent

2 Fruit columnar but tapering upwards, beaked; constricted between
6 the seeds which are separated by spongy partitions — 1. Raphanus

2 Fruit rotund, very flat, 1-seeded

4 Fruit winged on the margin, the wing often perforated; pub-
8 escence of simple hairs — 2. Thysanocarpus

4 Fruit not winged on the margin; pubescence of forked hairs — 3. Athysanus

0 1b. Fruit dehiscent, separating into 2 valves, the ovules attached to the margin of the
4 central erect partition

2 2a. Fruit rotund in outline, heart-shaped, oval or obovate, hardly more than twice as long as broad

3a. Fruit strongly flattened contrary to the partition

6 Fruit broader than long, very flat, notched half way down to
10 the base, pubescent (see also Lepidium, Draba) — 4. Physaria

6 Fruit longer than broad or rotund, shallowly notched or not at
10 all, glabrous

8 Fruit winged on the margins

10 Each ~~locule~~ of the fruit usually 1-seeded;

14 fruit 3-5 mm. long — 5. Lepidium

10 Each ~~locule~~ of the fruit usually 2-seeded;

14 fruit 12-15 mm. long, or if less, not notched — 6. Thlaspi

8 Fruit not winged on the margins, obcordate or wedge-shaped — 7. Capsella

3b Fruit little or not at all flattened or flattened parallel to the partition

Stems 40-60 cm. tall; fruit obovate — 8. Camelina

Stems less than 10 cm. tall

8 Plants terrestrial; pubescence branched — 9. Draba

8 Plants aquatic, glabrous — 10. Subularia

2 2b Fruit linear or linear-oblong in outline, or sometimes lanceolate

6 or elliptical, at least 3 to many times as long as broad, commonly columnar or 4-angled, sometimes tapering

9a Fruit distinctly flattened parallel to the partition

Fruit 6-15 mm. long (see also Arabis Nuttallii) — 9. Draba

Fruit 2-10 cm. long (sometimes less in Arabis Nuttallii)

Fruit rarely longer than 3 cm., the valves not nerved but smooth; herbage glabrous — 11. Cardamine

Fruit mostly longer than 3 cm. (except A. Nuttallii) usually bearing a vein or rib down the middle of each valve; herbage usually pubescent, at least at the base of the plant — 12. Arabis

4b Fruit somewhat flattened contrary to the partition, or columnar,
sometimes 4-angled

Fruit tapering into a seedless beak which is prolonged beyond the valves 13. Brassica

Fruit ~~tapering or even but~~ not beaked except by the short style

Fruit distinctly tapered toward the apex proper

Caespitose perennials 15-20 cm. tall, hoary

14. Smelowskia

Erect green annuals 30-60 cm. tall or more 15. Sisymbrium

Fruit even thickness throughout or sometimes thicker above

Fruit 0.5-1.5 cm. long

Pubescence of simple hairs 16. Radicula

Pubescence of forked or branching hairs

17. Descurainia

Fruit 2-10 cm. long

Fruit 4-angled

Herbage glabrous 18. Barbarea

Herbage pubescent with closely appressed

forked hairs attached centrally

19. Erysimum

Fruit terete or columnar

Pubescence of simple hairs 15. Sisymbrium

Pubescence of forked or branching hairs

17. Descurainia

Key for Plants with Immature Pods. → Fruits.

0 1a. Aquatic plants with linear basal leaves 3-5 cm. long — 10. Subularia

0 1b. Plants terrestrial, not as described above (leaves)

2 2a. Flowers yellow

4 Leaves prevailingly simple, sometimes toothed but

6 hardly pinnatifid or only so at the base of the plant

6 Pubescence of branched hairs

8 Annual herbs with usually solitary stems

10 Leaves prevailingly 3-6 cm. long; stems

14 mostly 30-60 cm. tall

12 Petals 3.5 mm. long — 8. Camelina

12 Petals 5-20 mm. long — 19. Erysimum

10 Leaves prevailingly 1-3 cm. long — 9. Draba

8 Perennial tufted herbs with numerous stems — 4. Physaria

6 Pubescence none or mostly of simple hairs — 13. Brassica

4 Leaves prevailingly pinnatifid or pinnate

6 Pubescence of branched hairs — 17. Descurainia

6 Pubescence of simple hairs or wanting

8 Petals 2-2.5 mm. long — 16 Radicula

8 Petals 3-8 mm. long

10 Terminal lobe of leaves prevailingly triangular or at least acute, or irregularly incised — 15. Sisymbrium

10 Terminal lobe of leaves prevailingly obtuse or

14 rounded and subentire — 18. Barbarea

2. 2b Flowers white or purple, sometimes greenish or with petals

1 3a.

6 Plants glabrous, often glaucous

8 Leaves rotund-cordate — 11. Cardamine

8 Leaves oblanceolate or oval, tending to obovate,

12 those on the stems sessile and clasping

10 Flowers purple — 12. Arabis

10 Flowers white

12 Flowers rather distant upon rachis, not densely

16 crowded — 6. Thlaspi

12 Flowers close-set, in rather densely crowded

16 clusters — 5. Lepidium

6 Plants more or less pubescent with simple or branched hairs

8 Hairs simple, rarely forked (see also Draba)

10 Perennial herbs with stems arising from a branching

14 caudex, the basal leaves tufted — 12. Arabis

10 Slender annuals, the leaves not tufted — 2. Thysanocarpus

8 Hairs branched

10 Plants 30-60 cm. tall or more — 12. Arabis

10 Plants 10-30 cm. tall, rarely more

12 Slender annuals with slender stems

14 Pedicels recurving after flowering — 3. Athysanus

14 Pedicels remaining ascendent — 9. Draba

12 Low perennials with a woody caudex

14 Leaves 5-10 mm. long — 9. Draba

14 Leaves 10-30 mm. long — 12. Arabis

4 3b Leaves distinctly pinnatifid to pinnately compound

6 Low perennials, the leaves canescent, tufted upon the close-set

10 root crown — 14. Smelowskia

6 Annuals or leafy perennials

10 Plants aquatic or amphibious; stems leafy well into the

14 inflorescence — 16. Radicula

Plants of dry fields and waste places; stems leafy below,

the inflorescence naked or bracteate

11 Petals small, not showy; lobes of basal leaves

16 acute

7. Capsella

12 Petals showy; lobes of basal leaves rounded,

16 obtuse

1. Raphanus

/. Raphanus L. Radish.

Erect branching annual or biennial herbs. Basal leaves lyrately pinnate or pinnatifid. Flowers purple or white tinged with purple. Pods columnar, indehiscent, tapering into a beak, the seeds separated by corky thick transverse partitions.

1. R. sativus L. Stems 1 m. tall or more, much branched above; leaves glabrate or hirsute; flowers purple or white, rather showy; pods 4-5 cm. long, 6-7 mm. thick, 2-3 seeded.

A frequent weed in waste places; naturalized from Europe.

2. Thysanocarpus Hook.

Erect slender annual herbs, ~~usually unbranched or branching in the upper axils~~ → Leaves alternate, the basal oblanceolate, the cauline auricled. Flowers minute, white or purplish, the pedicels soon recurving. Pods orbicular, very thin, indehiscent, disc-like and usually concave, the margin winged, often coglike. Ovules and seeds solitary.

Lace Pod

1. T. curvipes Hook. Rather pretty, slender, erect annuals, the stems simple or more commonly once or twice branched in the upper axils, the branches filiform, hispidulous with simple hairs near the base, glabrous above; lowermost leaves oblanceolate, 2-2.5 cm. long, narrowed to an indefinite petiole, the margin sinuately toothed, both surfaces more or less hispidulous; upper leaves lanceolate, smaller and reduced above, auricled and clasping, even subhastate, glabrous, entire, acute; flowers about 1.5-2 mm. long; pod ~~indehiscent, orbicular but~~ → narrowed slightly at the base, about 5 mm. wide but variable, the wing pinkish, often crenulate, nearly as wide as the body of the fruit which radiates into it with coglike projections, a thin membrane intervening, wholly glabrous or hispidulous. → (T. trichocarpus Rydb.).

var. elegans (F. & M.) Robins. Somewhat ~~Somewhat~~ more robust, the pods commonly 6 mm. broad, the membranes between the coglike projections perforated, at least in some. (T. elegans Fisch. & Meyer.) — →

North → Kootenai Co., Sandberg; Clearwater (Kooskooskee) Valley, Geyer 343.

3. Athysanus Greene.

Small inconspicuous annual herbs, branching at the base, the stems slender, numerous. Leaves simple, the basal spatulate, the cauline not auricled. Flowers minute, the pedicels soon recurving, petals white, often wanting. Pods orbicular, flattened, indehiscent, not winged. Ovules 3-4, only one maturing.

1. A. pusillus (Hook.) Greene. Tufted annual 15-20 cm. tall, the stems ~~numerous or few, branched only at the base~~ filiform, ascending, glabrous at least in the upper parts, the lower stellate-pubescent; basal leaves spatulate, 1 cm. long or less, usually with one or two teeth; cauline leaves oval, sessile, or ovate, sparingly toothed or entire, not auricled, 5-8 mm. long, stellate-pubescent, flowers about 1 mm. long on a subequal pedicel which soon recurves, elongating to 3-8 mm., glabrous; ~~petals often wanting~~ pod 2-2.5 mm. in diameter, ~~orbicular, flattened, indehiscent~~ hispidulous with more or less hooked hairs; seed 1.

S. end of Lake Pend Oreille, Leiberg; Kendrick, Henderson; Santa, Epling, Wyckoff and Offord; Coeur d'Alene valley, Geyer 607.

4. Physaria Gray.

Caespitose perennials from rather stout tap roots, with dense ~~pubescence~~ branched pubescence. Basal leaves obovate to spatulate, petioled, tufted; cauline leaves not auricled. Flowers yellow, conspicuous. Pods obcordate, and flattened, lightly inflated. Seeds 2-3 in each compartment.

1. P. Geyeri (Hook.) Gray. Double Bladder-pod. Stellate-canescent, silvery-silky perennial 15-20 cm. tall; stems numerous, from a short crown, densely tufted, rather diffuse and spreading above; basal leaves strongly spatulate, the blades orbicular to obovate, 1.5-2 cm. broad, narrowed to a petiole nearly twice as long, margins entire; cauline leaves 1-2 cm. long, oblanceolate, narrowed to an indefinite petiole; sepals narrowly oblong, 6 mm. long, petals 8-10 mm. long, yellow; pods 6 mm. long, slightly wider, broadly obcordate, ~~lightly inflated~~ stellate-pubescent, the persistent style 5-6 mm. long; seeds commonly 2 in each compartment.

In dry gravelly soil at low elevations.

5. Lepidium L.

Small annual or biennial herbs. Leaves pinnatifid, toothed or entire. Flowers white or whitish, small, the corolla sometimes minute or wanting. Capsules orbicular or oval in outline, strongly flattened contrary to the partition, notched at the apex with a narrow wing on either side. Seeds solitary in each chamber, pendulous.

densiflorum

o Leaves oblanceolate, none clasping at the base 1. L. apetalum

o Leaves prevailingly oblong or ovate at least 4 above the middle of the stem, clasping the stem

2 Leaves 1.5-2.5 cm. wide; pods obcordate, not winged 2. L. Draba

2 Leaves less than 1.5 cm. wide; pods oval, winged 3. L. campestre

densiflorum Schrad.

1. L. apetalum Willd. Peppergrass. Erect annuals, 40-50 cm. tall, simple below, branching above, ashy-puberulent throughout with a minute gramular pubescence; leaves oblanceolate, 2-3 cm. long, those in the lower axils sharply and narrowly toothed, the teeth ascending, those above subentire; flowers small and greenish, petals minute or wanting; pods oval, 3 mm. long on slender subequal pedicels, notched lightly at the apex; seeds 1.3 mm. long, flattened, lightly margined.

An occasional weed in waste places and around dwellings; naturalized from Europe. Wallace, Epling and Offord 8112. C. L. Hitchcock reports var. elongatum (Rydb.) Thell. from Lewiston (Madrono 3: 280). In this the pods are 3.5 mm. long.

Hoary Cress.

2. L. Draba L. Erect perennial herbs 30-50 cm. tall, branching from the base, the stems ascending, thinly pubescent with mostly simple hairs; lower leaves oblanceolate, the median leaves elliptical, narrowed toward the base and clasping, all 3-6 cm. long, 1.5-2.5 cm. wide, sparingly dentate, mostly obtuse, thinly pubescent with forked and simple hairs; inflorescence branched, the branches corymbose; sepals 2 mm. long, glabrous; petals white, 3.5 mm. long, attenuate below; pods obcordate, 4.5 mm. wide, tipped by the persistent style.

Occasional in waste places in the lower valleys; naturalized from Europe.

not → Bonner's Ferry, Epling.

Lymenophysa pubescens C. A. Mey. Perennial with the aspect of Lepidium Draba, the racemes compacted in flower; petals white, 3-4 mm. long; pods indehiscent, puberulent, narrowed to the base, not at all cordate. →

not → Recent introduction from Siberia, said to have been brought in with alfalfa seed, to be expected in our area. Forms large colonies, difficult to eradicate, by the strong long rootstocks.

(L.) R.Br.

3. L. campestre Erect annuals of varied aspect, 10-40 cm. tall, ashy-green, pubescent with short spreading hairs, the lowermost leaves often tufted, the blades oval, 1-2 cm. long, abruptly narrowed to a petiole as long or longer, the stem leaves 1-3 cm. long, mostly oblong or oblong-lanceolate, sessile, clasping, acutely auricled at the base, denticulate; inflorescence commonly 3-branched, the branches ascending, 5-15 cm. long; pedicels 2-3 mm. long in flower, becoming 5-6 mm. long in fruit, widely extended; pods 5 mm. long, oval, winged, the wing broadest at the apex, half as long as the pod proper.

An occasional weed, naturalized from Europe. ——————→

not → Hope, Epling.

6. Thlaspi L. Penny Cress.

Glabrous annual or perennial herbs. Leaves simple, clasping, entire or toothed, those on the stems auricled. Flowers white. Sepals oval, thin-margined, erect. Petals entire. Capsule orbicular or obovate in outline, strongly flattened contrary to the partition, notched or entire at the apex, winged; seeds several.

0 Petals 3-4 mm. long; pods 12-15 mm. in diameter — 1. T. arvense

0 Petals 4-6 mm. long; pods 5-6 mm. long — 2. T. cochleariforme

1. T. arvense L. Annual, erect, 30-50 cm. tall, glabrous, simple below, branching in the upper axils; basal leaves oblanceolate, even spatulate, narrowed to a margined petiole, soon withering; cauline leaves oblong-lanceolate, obtuse, 3-4 cm. long, sessile, auricled and clasping, the margins toothed; flowers white, 3-4 mm. long; pods 12-15 mm. in diameter when mature, very flat, the wing commonly 3 mm. wide, the notch 1-3 mm. deep, pedicels about 1 cm. long.

A frequent weed in or near the grassland; naturalized from Europe.

2. T. cochleariforme DC. Perennial, 15-25 cm. tall, glabrous throughout and glaucous; leaves in a basal tuft and cauline, the basal on slender petioles 5-10 mm. long, the blades 10-20 mm. long, oval or obovate, subentire or repand, the stem leaves about half as long as the internodes, sessile, clasping, ovate, auricled at the base, the auricles 2-3 mm. long, entire; flowers white, petals 4-6 mm. long, the sepals 1.5-2 mm. long, green with scarious margins; pods 5-6 mm. long, 3-3.5 mm. wide, cuneate, rounded-truncate at the apex, the style 1-1.5 mm. long, the partition (after dehiscence) 1-1.5 mm. wide. (T. glaucum ——————→ A. Nels. var. hesperium Payson).

Frequent on subalpine slopes or in rock crevices or subalpine meadows in the southern part of our region.

7. Capsella Medic.

Annual herbs. Basal leaves tufted. Flowers small and white, the petals little exceeding the calyx. Pod strongly compressed contrary to the partition, triangular-obcordate (in our species), the style persistent in the notch. Seeds several.

1. C. Bursa-pastoris (L.) Medic. Shepherd's Purse. Of varied aspect, the stems simple, 10-15 cm. tall, or more commonly several, branching throughout, 40-50 cm. tall; basal leaves in a tuft, oblanceolate, 4-6 cm. long (or less) irregularly sinuately toothed, or subentire, narrowed to a margined petiole about half the length of the blade, stellate-pubescent, the margin ciliate, cauline leaves narrowly oblong, reduced upwards, auricled at the base; racemes in fruit 25-30 cm. long, very open; flowers white, 2.5 mm. long, pods 6 mm. long, strongly flattened but the margins rounded, the whole somewhat concave, triangular obcordate, sometimes nearly truncate at the apex; ~~the style persistent in the notch~~ pedicels commonly twice as long, ascending. →(Bursa Bursa-pastoris Britt.).

A familiar weed of waste places and around dwellings, naturalized from Europe.

8. Camelina Crantz.

Annual herbs pubescent with branched hairs. Leaves alternate, auricled and clasping. Flowers in racemes, crowded at anthesis, elongated in fruit. Sepals equal, Petals yellowish. Pods subglobose, lightly flattened parallel with the partition, narrowly margined, each valve 1-veined, the style persistent. Seeds in 2 rows.

False Flax.

1. C. microcarpa Andrz. Stems 40-60 cm. tall, glabrous in the inflorescence, stellate-pubescent below; leaves ascending or erect, oblong-lanceolate, 2-5 cm. long, acutely auricled at the base and sessile, roughly pubescent especially upon the upper surfaces with simple or forked hairs; sepals 2 mm. long, scarious-margined, thinly woolly; petals yellowish, oblanceolate, 3.5 mm. long; pods 6 mm. long, narrowed toward the base, the wing scarcely .5 mm. wide, the mature petioles ascending, 1 cm. long.

Occasional in waste places in the lower valleys. Apparently introduced from Europe in flax seed importations.

Moscow, Epling.

9. Draba L.

Low herbs with entire or toothed leaves. Flowers white or yellow. Filaments not toothed. Capsule commonly oval or oblong, flattened, the valves plane or slightly convex, nerveless. Seeds several or numerous in 2 rows in each chamber, neither margined or winged.

0 Annuals with a small tap root; leaves in a rosette at
4 the base, flowering stems naked or with a few leaves in the lower parts

2 Leaves wholly in a basal rosette; pods oval, 6-7x2.5
6 mm., glabrous; flowers white — 1. D. verna

2 Leaves largely basal but some in the lower nodes of
6 the flowering stems

4 Flowers and fruit disposed chiefly toward the
8 apex of the stems; pods oblong, 12-15x2 mm., strigulose; flowers white — 2. D. caroliniana

4 Flowers and fruit distributed throughout the
8 stems; pods oblong, 6-12x1.5-2.5 mm. glabrous or pubescent; flowers yellow

6 Pods glabrous, 1.5 mm. wide; leaves chiefly
10 basal — 3. D. stenoloba

6 Pods hairy, 1.5-2.5 mm. wide; leaves more
10 commonly cauline — 4. D. nemorosa

0 Perennials, caespitose, the leaves imbricated in dense
4 tufts

2 Pods 1.5 mm. wide, more or less twisted — 5. D. lonchocarpa

2 Pods 3 mm. wide, plane — 6. D. laevicapsula

1. D. verna L. Whitlow Grass. Low annuals, 3-12 cm. tall, the leaves in a dense rosette, oblanceolate to spatulate, less frequently oval, 2 cm. long, entire or with one or two obscure teeth, both surfaces rough with a stellate pubescence; flowering stems simple, 5-10 cm. long, glabrous except at the base; flowers white, 3 mm. in diameter, sepals thinly hirsute, scarious-margined, the petals deeply 2-cleft, somewhat exserted; pods 6-7 mm. long, 2.5 mm. wide, oval or elliptical, glabrous, the persistent style scarcely evident, on slender, ascending pedicels 8-15 mm. long; seeds neither margined nor winged.

Gravelly prairies at low elevations. Probably our plant is var. aestivalis Lejeune (cf. Rhod. 36: 370. 1934.).

2. D. caroliniana Walt. Low annual, the leaves in a small rosette, ascending the short stems for 1-2 nodes, generally obovate or oval, 1-1.5 cm. long, mostly entire, rough woolly with a stellate pubescence; flowering stems simple, 5-10 cm. long, wiry; flowers white, commonly 10 or less, borne near the apex; sepals thinly hispid, scarious-margined; petals twice the length of the sepals, 3.5-4 mm. long, notched, spreading; pods oblong, strigulose, 12-15 mm. long, 2 mm. wide, on spreading pedicels 3-5 mm. long; seeds neither margined nor winged.

Cour d'Alene, Christ 999; Fernan Lake, Christ 32. Forma stellifera O.E. Schulz, with upper leaf surface of cauline leaves pubescent with white branched hairs, was based on a collection from Lewiston, Sandburg et al. 141.

3. D. stenoloba Ledeb. Annual, 10-30 cm. tall, branching from the base or lower axils, more commonly simple, the leaves in a basal tuft and ascending into the lower nodes, 1-3 cm. long, oblanceolate or oblong, entire or obscurely toothed, hispidulous with simple and branched hairs, one leaf commonly subtending the lowest flower or branch of the inflorescence, flowering nearly to the base; the flowers yellow, sepals nearly or quite glabrous, petals oblong, obtuse, narrow, exceeding the sepals by one half; pods 8-10 mm. long, 1.5-2 mm. wide, oblong, with a tendency to curve somewhat, glabrous and shining, on ascending pedicels 1-1.5 cm. long; seeds apiculate, neither margined or winged.

In moist gravelly soil on open slopes at high elevations. Fish Lake Cr., 5000 ft; Shedroof Mt., 4000 ft.

4. D. nemorosa L. Annual, 10-30 cm. tall, branching from the base and in the lower axils, or simple, villous below, glabrous above; leaves few in a rosette, chiefly cauline, the basal leaves soon withering, generally oblanceolate, the cauline oblong-oval or ovate, 1-2 cm. long, obtuse, rounded at the base and sessile, margin toothed, the teeth triangular, or subentire, both surfaces villous with simple and branching hairs; flowers borne nearly throughout, yellow, 2.5 mm. in diameter; sepals glabrous or minutely pubescent with a few hispid hairs; petals somewhat longer, notched; pods oblong, 9-10 mm. long, 2-2.3 mm. wide, appressed-hirtellous, the persistent style hardly apparent, on spreading pedicels 1.5-2.5 cm. long; seeds neither winged nor margined, oval, .9 mm. long.

Dry hillsides below 3000 ft. Recent treatment of this species in Rhodora 36: 365. 1934. Albany Falls; Coeur d'Alene Valley; Ft. Colville; Moscow.

5. D. lonchocarpa Rydb. Low caespitose perennial, the caudex branching, the leaves imbricated at the tips, obovate or elliptical, 5-6 mm. long, obtuse, entire, densely stellate-pubescent; flowering stems simple, 5-10 cm. tall, glabrous, bearing a few flowers toward the summit; flowers white; sepals nearly or quite glabrous, petals twice as long, retuse; pod 9-10 mm. long 1.5 mm. wide, glabrate, some at least, with 1-2 distinct twists in age, some nearly plane, on pedicels 3-4 mm. long; seeds neither margined or winged, broadly oval, 1 mm. long.

Rare, in rock crevices of subalpine summits. ——————→

not ——→ Snowy Top Mt., 6000 ft., Anderson; Fish Lake, Epling and Houck 7972.

I ~~———~~ of the branches

6. D. laevicapsula Payson. Low caespitose perennial, caudex with much branched ~~much branched~~, the leaves imbricated at the tips, narrowly oblanceolate, 5-10 mm. long, obtuse, entire, stellate-pubescent; flowering stems simple, rather stout, 5-10 cm. tall, glabrous, bearing a few flowers toward the summit; ~~flowers not seen~~ pods elliptical, 8-9 mm. long, 3 mm. wide, tipped by the persistent style, nearly 1 mm. long, glabrous; seeds neither winged nor margined. (D. incerta Payson var. laevicapsula (Payson) Payson et St. John).

Type and only known collection, apart from a Brandegee sheet from "Yakima region", Wash., is summit of Stevens Peak, 6400 ft., Leiberg 1477.

10. Subularia L. Awlwort.

Small perennial aquatics with tufted linear-subulate leaves. Flowers racemate in a slender raceme. Sepals ovate, spreading. Petals spatulate, white. Pod elliptical or subglobose, ~~turgid~~ plump. Seeds several.

1. S. aquatica L. Leaves 3-5 cm. long, 1-2 mm. broad, tapering evenly, very acute, expanded and sheathing at the base; scape 3-12 cm. long; flowers 8-15; pods distant, elliptical, 2.5-3 mm. long, ~~turgid~~ plump, on pedicels 1.5-2.5 mm. long, stigma sessile; seeds 1.3 mm. long.

Margins of lakes and quiet streams. Perhaps more widespread but overlooked. →

not → Priest Lake, Piper 3766.

11. Cardamine L.

Low, mostly glabrous perennials. Leaves simple or more commonly irregularly pinnatifid, the terminal lobe largest. Flowers in racemes or panicles, white or purple. Sepals more or less erect. Petals obovate to narrowly spatulate, Pods linear, straight, more or less flattened parallel to the partitions, valves veinless. Seeds in one row, neither margined or winged.

o Leaves all simple, rotund-reniform

2 Stems 30-50 cm. tall; flowers 8 mm. long — 1. C. Lyallii

2 Stems 10-20 cm. tall; flowers 4 mm. long — 2. C. Leibergii

o Leaves (at least the lowermost) pinnatifid

2 Upper leaves simple or rarely 3-foliolate

4 Plants with slender rootstocks, the leaves 8 mostly entire — 2. C. Leibergii

4 Plants without rootstocks, the leaves 3-7 8 foliolate — 3. C. Breweri

2 Upper leaves similar to the lower, all pinnatifid

4 Basal leaves generally in a conspicuous 8 rosette; leaflets all more or less similar, subrotund in outline; pods with 10 seeds or fewer — 4. C. oligosperma

4 Basal leaves approximate but hardly forming a 8 rosette, leaflets diverse, oval in outline, the terminal commonly much larger, pods with 15-20 seeds — 5. C. pennsylvanica

1.

C. Lyallii Wats. Stems erect, 30-50 cm. tall from a slender, creeping rootstock 1.5 mm. in diameter, glabrous throughout; leaves all simple, rotund-reniform or broadly ovate; deeply cordate at the base, irregularly sinuately toothed or nearly entire, blades 3-8 cm. broad, petioles subequal or somewhat shorter, only the lowermost longer; flowers white, sepals 3 mm. long, scarious toward the tip, petals 8 mm. long, spreading, retuse at the apex; pedicels slender, 5-6 mm. long which lengthen to 2 cm. in fruit; pods erect or ascending, 3 cm. long, scarcely 1.5 mm. wide, attenuate to the style which about 2 mm. long, narrowed toward the base; seeds ~~in a single row~~ oval, slightly more than 1 mm. long, about 10 in a pod.

Upper St. Joe River along bank at foot of cliff in a very moist place; Epling ~~and~~ Putnam and Dennis 10300; Vanderbilt Gulch, Epling and Kempf.

2. C. Leibergii Holz. A low glabrous perennial with stems 15-20 cm. tall, arising from a slender creeping rootstock, the lower leaves on slender petioles 2-5 cm. long, the blades either simple, the lateral leaflets being suppressed, or subtrifoliolate, the lateral segments remote, the terminal lobe orbicular, slightly cordate or rounded at the base, sinuately dentate, the teeth 5-7, each with a callous at the apex; cauline leaves similar to the terminal lobes of the lower, the uppermost on petioles about 1 cm. long; flowers white, 3-4 mm. long; fruit not seen.

Moist places near the summit of Packsaddle Peak, Sandberg 856. A doubtful species known certainly only ~~for~~ this collection; perhaps a form of (from) C. Breweri.

3. C. Breweri Wats. Stems erect, 30-50 cm. tall from slender filiform rootstocks 1.5 mm. in diameter, glabrous throughout or sparingly hispidulous at the base, lower leaves 4-8 cm. long, pinnatifid, lobes 3-7, the terminal lobe much larger, 1-3 cm. in diameter, ovate to subreniform, commonly cordate, irregularly sinuately toothed, the teeth mucronate, the lower lobes generally oval, reduced toward the base; upper leaves becoming gradually simple, resembling the terminal lobe of the lower leaves, petioles 2-5 cm. long; sepals 2-3 mm. long, oblong, scarious toward the tip, petals twice as long or more; pods erect or ascending, 2-3 cm. long on the same plant, 1 mm. wide or less, attenuate at the apex into the style, about 3 mm. long, pedicels 8-10 mm. long; seeds ~~in a single row~~ oblong-oval, 1-1.5 mm., about 10 in pod. (which is)

Occasionally plants may have undivided leaves throughout, or conversely, trifoliolate leaves in the upper axils; rare in our region.

no ¶ → Kootenai Co., Sandberg; Fish Lake, 5000 ft., Epling and Houck 9875.

4. C. oligosperma Nutt. Stems 20-40 cm. tall, more or less hirsute, or glabrate, more often simple; ~~root often solitary never (?) more than 2-3~~; leaves in a basal tuft and along the stem, 5-7 cm. long, pinnate, the leaflets 8-15 mm. long, 7-13, oval or ovate, entire or 3-toothed toward the apex, sparingly hirsute, on petioles 1-3 mm. long; flowers white, in a few racemes in the upper axils, or simply racemose; sepals 1.5-2 mm. long, the petals less than twice as long; pods ascending, about 2.5 cm. long, 1-1.5 mm. wide, seeds ~~in a single row~~ 10 or less, .8 mm. long, oblong-oval.

In shaded muddy stream bottoms, mostly below 3000 feet, infrequent; N. Fork Clearwater R., Epling and Houck 9434; Upper Priest R., Epling 7306.

5. C. pennsylvanica Muhl. Stems about 30 cm. tall, commonly several from a short crown with fibrous roots, branching throughout; glabrous throughout; leaves quite variable, irregularly pinnatifid, or pinnate, 5-10 cm. long, the segments for the most part about ten, glabrous, generally oval or oblong, .5-2 or 3 cm. long, entire or toothed (when long), terminal lobe commonly largest, entire, lobed or toothed, the lateral segments oval to linear, pedicels subequal to or shorter than the blade; flowers in panicles, white; sepals 1.5 mm. long, the petals 2.5-3 mm. long, oblanceolate, pods ascending or erect, 2.5 cm. long, 1 mm. wide, acute; seeds ~~in a single row~~ 15-20, scarcely 1 mm. long, oval.

In shaded muddy stream bottoms, usually below 3000 feet; frequent.

12. Arabis L.

biennial

Erect or perennial herbs commonly with oblanceolate leaves in a basal tuft and auricled cauline leaves. Sepals erect, frequently purplish, the lateral pair more or less gibbous at the base. Petals more or less spatulate, usually about twice the length of the calyx and somewhat spreading, white or purple. Stamens without appendages. Pods linear, strongly compressed parallel to the partition, commonly with a midvein in each valve. Seeds very flat, disc-shaped, usually with a margin or narrow wing (in our species).

0 Stem leaves tapering at the base, not auricled;
4 pods 10-20 mm. long — 1. A. Nuttallii

0 Stem leaves auricled, more or less clasping the
4 stem; pods 4-10 cm. long

2 Stems glabrous or pubescent only at the very base

4 Stem leaves 5-6 cm. long; pods 6-8 cm. long,
8 1.2-1.5 mm. wide, subcylindrical — 2. A. glabra

4 Stem leaves 3-5 cm. long or less; pods 4-7 cm.
8 long, 1.5-2.5 mm. wide, strongly flattened

dwarf

6 Plants rarely over 30 cm. tall; basal
10 pubescence wanting; pods 4-6 cm. long — 3. A. Lyallii

6 Plants 40-60 cm. tall; basal pubescence
10 sparse but distinct; pods 6-7 cm. long — 4. A. Drummondii

2 Stems and leaves more or less pubescent at least in the
6 lower parts

4 Pods strictly erect; corolla whitish — 5. A. hirsuta

4 Pods spreading, reflexed or pendulous, not
8 erect

branched

6 Plants thinly villous with simple or ~~stellate~~ hairs;
10 pods spreading, lightly curved; corolla rose-purple — 6. A. sparsiflora

branched

6 Plants finely ~~stellate~~-pubescent; pods strongly
10 reflexed or pendulous, straight; corolla white or pinkish; → 7. A. retrofracta

l.c. d ? (Plants 50-60 cm. tall, basal leaves in a rosette, the c uline numerous. d

1. A. Nuttallii Robinson. A slender perennial (or biennial) from a branching caudex covered with persistent leaf-bases; leaves basal and cauline, the former tufted, obovate to spatulate, blades 1-1.5 cm. long, narrowed to a subequal or shorter petiole, entire, both surfaces hispid, the margins and petioles ciliate, the hairs simple, stout, rarely forked, cauline leaves oblong-oval, 1.5-2.5 cm. long narrowed at the base, not auricled, flowering stems several, 10-20 cm. tall, glabrous; flowers few, ~~in the upper half of the stem~~, white; sepals glabrous, petals 4-6 mm. long, twice the length of the sepals; pods erect, 10-20 mm. long, 1.5 mm. wide, ~~flattened~~, curving somewhat, glabrous, valves veined, midvein obscure, the persistent style about 1 mm. long; seeds in one row, oval, 1-1.2 mm. long.

Infrequent in crevices of high peaks and thin soiled subalpine meadows.

2. A. glabra (L.) Bernh. Tower Mustard. Stems erect, simple, 60-80 cm. tall, retrorsely hispidulous near the base, glaucous and glabrous above, often with a reddish tinge; basal leaves in a loose rosette, 5-6 cm. long, soon withering, oblanceolate, entire or lyrately pinnatifid, more or less hispid, the hairs forking; cauline leaves oblong-lanceolate, 2-5 cm. long, glabrous and glaucous, or hispid on the midvein beneath, strongly auricled and clasping at the base; flowers crowded at the apex, the sepals narrowly oblong, the petals yellowish, somewhat exceeding the sepals; pods strictly erect, 1.2-1.5 mm. wide, 4-10 cm. long, imbricated in a raceme 15-20 cm. long, glabrous, veiny, the midvein prominent, on pedicels 8-10 mm. long; seeds .5 mm. in diameter, somewhat margined, irregularly disposed in two rows. → (Turritis glabra L.; A. perfoliata Lam.).

Frequent throughout our region in thin soil and on rocky outcrops mostly below 4000 feet.

3. A. Lyallii S. Wats. Stems dwarf, 5-30 cm. tall, from a branching caudex, usually glabrous, the basal leaves densely tufted, more or less caespitose, oblanceolate, 2-3 cm. long, narrowed to an indefinite margined petiole or subspatulate, the petioles more or less ciliate; cauline leaves narrowly oblong, tapering somewhat above, 2-3 cm. long, acute, auricled, the auricles clasping, glabrous and glaucous; flowers purple, the sepals glabrous, 3 mm. long, the petals twice as long or more, cuneate; pods erect or ascending, 4-6 cm. long, 2 mm. wide, subacute at the apex, the midvein commonly not evident, pedicels 4-5 mm. long; seeds in two irregular rows, 1.8 mm. wide, oval, narrowly margined. (A. Drummondi var. alpina Wats.).

On open gravelly slopes at higher elevations. Hopkins discusses the type of this plant under A. Drummondi var. alpina in Rhod. 39: 148. Certain colls. fall more or less outside either this species or the next; these represent in part var. oxyphylla (Greene) Hopkins, with a pubescence of bifurcate hairs.

4. A. Drummondii A. Gray. Stems 40-60 cm. tall, or more from a short perennial crown, glabrous and somewhat glaucous except a few forked or branching hairs; basal leaves tufted, oblanceolate, 2-3 cm. long, narrowed to an indefinite margined petiole, or subspatulate, the petioles more or less ciliate; cauline leaves narrowly oblong, tapering somewhat toward the apex, 2-3 cm. long, acute, auricled, the auricles clasping; glabrous and glaucous; flowers purple, sepals glabrous, 3 mm. long, the petals twice as long or more, cuneate; pods erect or ascending, 6-7 cm. long, 2.5 mm. wide, glabrous, subacute at the apex, the midvein usually evident, pedicels 4-5 mm. long; seeds in two irregular rows, 1.5-2 mm. in diameter, oval, narrowly margined.

On open gravelly slopes at higher elevations often among Xerophyllum tenax.

5. A. hirsuta (L.) Scop. Stems 30-40 cm. tall, solitary or several, hispid, glabrous; basal leaves in a rosette, 2.5-6 cm. long, oblanceolate to spatulate, the petiole margined, both surfaces more or less pubescent with forked hairs, the margins entire or sinuately dentate; cauline leaves oblong-lanceolate, 2-3 cm. long, the lower obtuse, the upper acute, auricled, clasping, both surfaces hirsute with simple and forking hairs or only the margins of the upper ciliate; flowers whitish, commonly 5-6 mm. long, variable, the petals half again as long as the sepals; pods strictly erect, 3-4 cm. long, 2 mm. wide, veiny, the midvein prominent, on pedicels 4-5 mm. long; seeds rotund, margined, 1 mm. in diameter, in a single row.

Frequent on rock outcrops and rocky ridges in thin soil, 2500-5000 feet; seen only in the northern part of our region.

6. A. sparsiflora Nutt. Stems 40-60 cm. tall, simple, several from a slender branching caudex, villous below with spreading simple or forking hairs, glabrous above; basal leaves oblanceolate, the blades commonly 2 cm. long, narrowed to a margined petiole about half as long, villous with simple and ~~stellate~~ branched or forking hairs, the petioles ciliate; cauline leaves lanceolate to narrowly oblong-lanceolate, acute, auricled, the aurioles spreading, the uppermost leaves even hastate, villous or subglabrous; flowers purple, on reflexed villous pedicels 3-4 mm. long; sepals 3-5 mm. long, villous; petals lavender 2-2.5 mm. long; pods wholly glabrous, 5-8 cm. long, nearly 2 mm. wide, spreading arcuate downwards, very acute, midveins obscure above the middle, on horizontal pedicels 8-9 cm. long; seeds in a single row, rotund, 1 mm. in diameter, very flat and thin, winged. (A. arcuata var. subvillosa Wats.).

Rocky outcrops and ledges, apparently only at low elevations; infrequent. Lake Pend Oreille, Leiberg 161; Potlatch, Epling & Houck 9242.

7. A. retrofracta Grah. Stems tall, 30-60 cm., solitary and simple or branching below, finely ~~stellate~~-pubescent in the lower part, glabrate above; ~~more or less stellate above~~, basal leaves soon withering, oblanceolate to spatulate, the blades .5-1 cm. long, narrowed to a petiole somewhat longer, densely and finely ~~stellate~~-pubescent; stem-leaves 1-4 cm. long, narrowly oblong-lanceolate, acute, shortly auricled, the margins more or less reflexed or revolute, both surfaces, especially the lower, densely and finely ~~stellate~~-pubescent, those in the upper axils reduced and subglabrous; flowers white or pinkish, the sepals 2.5-3 mm. long, ~~stellate~~-pubescent; pods strongly reflexed, sparingly pubescent when very young, glabrate and shining, straight or curving somewhat, 5-6 cm. long, 1.5 mm. wide, subacute at the apex, the midvein obscure above the middle; pedicels 1 cm. long, retaining the pubescence seeds in a single row, each distending the pod slightly, giving a beaded appearance, light brown, 1 mm. wide, rotund, narrowly winged.

Throughout our region on dry hillsides, in thin soil and on rock outcrops, 2000-6000 feet. For distinctions between this and A. Holboellii of Greenland see Hopkins, Rhodora 39: 179. 1937.

/3. Brassica L. Mustard.

Erect annual herbs, glabrous or hispid with simple hairs. Basal leaves more or less pinnate or pinnatifid, those on the stems tending to simple. Flowers yellow. Pods columnar, linear, tapering into a seedless beak, the valves bearing 1-3 veins. Seeds in one row in each chamber.

o Pods ascending on spreading pedicels; foliage pale green — 1. B. campestris

o Pods pressed to the stems; foliage dark green and uneven — 2. B. nigra

1. B. campestris L. Yellow Mustard. Stems 30-100 cm. tall, or more, glabrous; leaves glabrous and glaucous, the basal ones irregularly toothed or somewhat lobed, the stem leaves entire, rounded at the base and strongly clasping the stems; petals pale yellow, 6-8 mm. long; pods 5-7 cm. long, ~~tapering into~~ slender beak 10-12 mm. long.

An occasional weed in waste places.

2. B. nigra (L.) Koch. Black Mustard. Stems 30-100 cm. tall or more, glabrous or bearing a few straight hairs; leaves glabrous or sparingly hispid, dark green, uneven, the lower ones pinnatifid, the terminal lobes very much larger, irregularly toothed, the stem leaves more or less toothed and incised; petals bright yellow, 7-8 mm. long; pods 1.5-2 cm. long, pressed to the stems, ~~tapering into~~ slender abrupt beak 2-3 mm. long.

An occasional weed in waste places.

Sinapis arvensis L. Charlock. Resembling Brassica, the pod dehiscent, taperin into a stout flat beak which contains a single seed. An occasional weed.

14. Smelowskia C. A. Meyer.

~~Stellate-pubescent,~~ caespitose perennials with stout tap roots, ~~,~~ Leaves chiefly basal, deeply pinnatifid, not auricled. Flowers small, white or whitish. Pods linear-lanceolate or oblong, subterete but more or less compressed contrary to the partition, the valves boat-shaped. ~~Seeds 2-3 in each compartment.~~

1. S. calycina C. A. Meyer. ~~Stellate-canescent or hoary caespitose perennials with stout tap roots and~~ usually branching caudex clothed with the persistent leaf-bases; stems several, 15-20 cm. tall; basal leaves oblong in outline, 2-5 cm. long, pinnately parted, the lobes oblanceolate, 1-2 mm. wide, obtuse, the terminal lobe somewhat larger or subequal; petioles indefinite, commonly 1-1.5 cm. long; cauline leaves ~~similar but~~ smaller; flowers ~~white or whitish~~ 4 mm. long, the sepals more or less spreading; pods 6-7 mm. long, lanceolate-oblong in outline, nearly 2 mm. wide at the middle, somewhat flattened and curving, tipped by the persistent style, 1 mm. long, on pedicels subequal or somewhat longer; seeds commonly 2 in each compartment. (S. americana Rydb.).

Summit of Steven's Peak, ~~1980 m.~~ 6450 ft., Leiberg 1480.

15.

Sisymbrium L.

Erect annual herbs with branching stems which are pubescent with simple hairs. Leaves ~~alternate~~ once pinnatifid or the upper nearly entire. Flowers pale yellow, ~~displayed~~ in elongate racemes or panicles. Sepals subequal, erect. Pods linear, ~~either tapering toward the apex and closely pressed against the stems or even throughout~~ slender and spreading. Styles very short or none. Seeds in a single row in each chamber, marginless.

Petals 6-8 mm. long; pods 6-8 cm. long, spreading — 2. S. altissimum

Petals 3-3.5 mm. long; pods 1.5 cm. long, erect, closely pressed to the stem — 1. S. officinale

(L.) Scop.

1. S. officinale ~~L.~~ Hedge Mustard. Stems 30-100 cm. tall or more, divaricately branching above; leaves runcinate, 6-12 cm. long, sparingly hirsute, the hairs simple; flowers yellowish, 3 mm. in diameter; pods rigid, thick-walled, 1.5 cm. long, on a short stout stipe, tapering, closely appressed to the widely spreading branches of the inflorescence, glabrate. (Erysimum officinale L.)

European

An unsightly weed of waste places, especially of the grassland.

~~Gravelly Ford Valley, 860 m., Letterman 1674, Priest River, Spring 720~~

2. S. altissimum L. Tumbling Mustard. Erect, much-branched, rather diffuse weed, commonly 1 m. tall, glabrous or sparingly hirsute near the base, the hairs simple; lower leaves 12-20 cm. long, narrowly oblong or oblanceolate, deeply pinnatifid into triangular segments, these more or less sinuately toothed or entire; upper leaves with the lobes greatly narrowed, linear; flowers pale yellow, 7-8 mm. long, pods rigid, spreading, terete, 8-9 cm. long, 1 mm. or less in diameter on a stout stipe 8-10 mm. long, equal to or greater in diameter than the pod itself.

A common and often abundant weed of the grassland, naturalized from Europe.

Arabidopsis thaliana (L.) Heynhold. Annual with the aspect of Sisymbrium, the stems slender, 15-40 cm. tall, sparingly pubescent, setulose below; leaves small, recalling Capsella, oblanceolate, 2-5 cm. long; petals white; pods 4-angled, glabrous, ascending, 1-1.5 cm. long. (Sisymbrium thalianum Gray).

— Introduced European weed, infrequent, on dry prairies.

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or pinnately compound.

16. Radicula Dill. Water Cress.

Annual, biennial or perennial herbs of marshy ground, or some aquatic, mostly glabrous, some hispid with simple hairs. Leaves pinnatifid. Flowers numerous, small, yellow or white. Sepals spreading; petals clawed. Pods terete, ~~turgid~~, globose to oblong-cylindrical, often curved. Seeds ~~turgid~~, in 2 rows.

plump plump

O Petals white, twice the length of the sepals; leaves 4 pinnate

1. R. nasturtium-aquaticum

O Petals yellow, shorter than or equal to the sepals; 4 leaves pinnatifid

2 Pods 1 mm. wide, 1 cm. long, stems decumbent 2. R. curvisiliqua

2 Pods 2-2.5 mm. wide, 3-8 mm. long; stems erect 3. R. palustris

1. R. nasturtium-aquatica (L.) A perennial weed growing in water or mud with creeping stems rooting at the nodes, often forming large patches; leaflets 3-11, subrotund or ovate, subentire; pods about 1.5 cm. long, lightly curved, ascending, borne on spreading pedicels half as long. (Nasturtium officinale R. Br.).

In boggy ground or small streams, generally considered as naturalized from Europe. S. B. Parish has put forward ~~important~~ arguments for accepting it as a native, however.

2. R. curvisiliqua (Hook.) Greene. Annual or biennial, diffuse, 15-30 cm. tall; stems several, branching, decumbent, hispidulous; basal leaves numerous in a rosette, sometimes withering, 5-15 cm. long, oblanceolate, laciniately pinnatifid, the lobes narrowed at the base, the sinus very broad and rounded, often with a tooth, their margins irregularly serrate-dentate, both surfaces glabrous; cauline leaves similar, sessile, auricled; flowers yellow, numerous in terminal panicles 8-12 cm. long; sepals 2 mm. long, sparingly hispidulous, spreading, the petals subequal, mostly oval, greenish-yellow; stamens 4-6, subequal; ovary hispidulous along the sutures; pods about 1 cm. long, arcuate-ascending, 1-1.2 mm. wide, ~~turgid~~, obtuse, the persistent style nearly 1 mm. long, pedicels 5-7 mm. long; seeds .5 mm. in diameter.

Muddy or marshy ground below 3000 feet; throughout our region.

plump

3. R. palustris (L.) Bess. Biennial, erect, 30-60 cm. tall, branching, glabrous throughout or sparingly hispid on the stems; basal leaves lyrate, 5-8 cm. long, narrowed to a petiole about half the length of the blade; cauline leaves sessile, auricled, elliptical or oblanceolate in outline, 4-15 cm. long, ~~varying greatly with the vigor of the plant,~~ deeply pinnatifid, the sinuses rounded, broad, those toward the apex shallower, the lobes irregularly serrate-dentate; flowers numerous in terminal panicles, yellowish; sepals thin, 2 mm. long; petals scarcely as long, obovate; pods ascending or spreading on slender pedicels 3-8 mm. long, 5-8 mm. long, 1.5-2.5 mm. broad, oblong or subclavate, curving lightly, ~~turgid~~ plump, obtuse, the persistent style 1 mm. long, the stigma 2-lobed, broader than the style; seeds .7 mm. in diameter.

Muddy lake shores and stream bottoms and in marshy places; frequent.

var. hispida (Desv.) Rydb. Similar, more or less hispid, or nearly glabrous, the pods elliptical or subglobose, 3-3.5 mm. long. → → →

noH → Distribution similar to the type.

17. Descurainia. Webb and Berth. Tansy Mustard.

Annual or biennial herbs with erect branching stems, pubescent with forked or branched hairs. Leaves alternate, fern-like, pinnate or pinnatifid. Flowers yellow, terminally crowded in racemes. Sepals subequal, soon deciduous. ~~Siliques~~ Pods linear, columnar, slender, with 1-veined valves. Seeds in 1-2 rows in each chamber.

a Leaves once or twice pinnate or pinnatifid; herbage green

b ~~Siliques~~ Pods 1-1.5 cm. long on pedicels about 1 cm. long 1. D. incisa

b ~~Siliques~~ Pods 8-10 mm. long on pedicels about 1.5 cm. long 2. D. longipedicellata

a Leaves twice or thrice pinnatifid, dissected into numerous small segments; herbage ashy-green

b ~~Siliques~~ Pods 2-2.5 cm. long 3. D. Sophia

b ~~Siliques~~ Pods 6-8 mm. long 4. D. canescens

1. D. incisa (Engelm.) Britt. Biennial, 1-1.5 m. tall, stem erect, the branches ascending, 30-50 cm. long, all minutely stellate-puberulent; lower leaves sessile, 15-18 cm. long, pinnate, the lobes 7-9, oblong or lanceolate, 2-4 cm. long, obtuse, about 6-10 mm. wide, pinnately toothed or lobed, mostly sessile, the upper decurrent, all sparingly ~~stellate~~; ~~rachis stellate~~, sepals oblong, 2 mm. long, yellowish; petals spatulate, 3 mm. long, pinnately veined, yellow; mature pedicels about 1 cm. long, spreading; pods 1-1.5 cm. long, ascending, 1-1.5 mm. broad, somewhat torulose, the valves 1-veined; seeds uniseriate, oval, 1.5 mm. long. (D. Richardsonii subsp. incisa Detling).

Along the trail, Fish Lake Cr., 5000 ft., Epling & Houck 9460.

2. D. longipedicellata (Fourn.) O. E. Schulz. Annual, 0.1-2.0 m. tall, mostly simple, the herbage dark-green, glabrous or thinly puberulent; all leaves petiolate, 2-6 cm. long, pinnate, the divisions again more or less pinnatifid, the segments of upper leaves often broader; racemes thin, not much elongating, 4-7 cm. long, the pedicels ascending; flowers pale yellow or whitish, the sepals obovate-oblong, 1-2 mm. long, nearly equaling the corolla; fruiting pedicels about 1.5 cm. long, slender, spreading at least 45° away from the rachis; siliques 1.0-1.5 cm. long, linear, a little curving, and shorter than pedicels, more or less erect; seeds crowded into 1 row though biseriate, about 1 mm. long. (D. pinnata subsp. filipis (Gray) Detling).

Bonners Ferry, Christ 1423; Clearwater R., Spalding (type of Sisymbrium incisum var. filipes Gray); Lewiston, fide Detling.

3. D. Sophia (L.) Webb. Erect, 50-60 cm. tall, ashy throughout with forked or ~~stellate~~ branched hairs, branching in the upper axils, the branches ascending; leaves numerous, 3-6 cm. long, thrice pinnatifid, the segments again pinnately lobed or entire, commonly 2-4 mm. long; flowers in elongate panicled racemes, greenish-yellow; sepals 2.5 mm. long, linear-oblong, the petals often wanting; pods slender, linear, 1 mm. in diameter or less, 2-2.5 cm. long, glabrous, lightly curved, erect, borne on slender ascending pedicels 10-15 mm. long; seeds uniseriate. (Sisymbrium Sophia L.).

A weed introduced from Europe; frequent along roadways at lower elevations.

4. D. canescens (Nutt.) Prantl. Erect rather slender annual herbs with gray-green foliage, 30-50 cm. tall, branching above, finely puberulent throughout but not densely so, with small branching hairs; leaves 2-5 cm. long, obovate in outline, 2 or 3 times pinnatifid into short obovate or elliptical segments 2-5 mm. long; flowers pale yellow, 2.5 mm. tall, the petals spatulate; pods 6-8 mm. long, less than 1 mm. thick, glabrous, acute at both ends, or nearly erect, on ascending or spreading slender pedicels 4-8 mm. long; seeds strictly in 1 row.

In gravelly soil, Partridge meadow, Epling.

18. Barbarea R. Br. Winter Cress.

Biennial or perennial glabrous herbs with lyrately pinnatifid leaves. Flowers yellow. Sepals more or less saccate at the base. Petals spatulate, clawed. Pod linear, somewhat 4-angled by the prominent midvein of each valve, the style short, the stigma 2-lobed. Seeds in one row in each chamber, marginless.

o Pods ascending at an angle of about 45 degrees,
4 not appressed and overlapping; flowers bright yellow — 1. B. orthoceras

o Pods nearly erect, appressed and overlapping;
4 flowers pale yellow — 2. B. stricta

1. B. orthoceras Ledeb. Stems 40-60 cm. tall, the lower leaves ~~lyrate,~~ 5-15 cm. long, the terminal lobe ovate, rounded, subentire or shallowly toothed, 2-3 cm. long, the lateral pairs 1-4, subentire, 8-15 mm. long, the stem leaves similar, smaller, sessile, the subdivisions more slender, even linear; flowers bright yellow; pods 4-5 cm. long, 1.5 mm. in diameter, even, shining, ascending, the pedicels spreading, 3-5 mm. long.

Stony borders of Lake Coeur d'Alene and Kooskooskee (Clearwater) R., Geyer 604; Pend Oreille R., Lyall; Orogrande Cr., Epling and Houck 9354.

2. B. stricta Andrz. Stems 10-60 cm. tall, the lower leaves ~~lyrate,~~ 5-10 cm. long, the terminal lobe ovate or oval, rounded, subentire, 2-3 cm. long, the lateral lobes 2-3 pairs, subentire, 8-15 mm. long, the stem leaves ~~similar smaller~~ sessile; flowers pale yellow; pods 2.5-3 cm. long, nearly erect, overlapping and forming a rather compact cluster, the pedicels 2-3 mm. long, ascending.

Lake Coeur d'Alene, Rust 473; New Cabinet, ~~630 m.~~ 2000 ft., Leiberg 1634; Headquarters, Epling.

Moist ground of wet places.

19. Erysimum (Tourn.) L. Wall Flower.

Annual or biennial herbs. Pubescence of appressed hairs attached at the middle. Leaves alternate and basal. Flowers often conspicuous, yellow. Sepals erect, the lateral ones more or less gibbous at the base. Petals obovate, slenderly clawed. Filaments unappendaged. Capsules linear, compressed, or more or less 4-angled, the valves with a conspicuous midvein. Seeds numerous, sometimes margined, in 1 row in each compartment.

o Flowers pale yellow, 4-5 mm. long; pods 2-3 cm. long — 1. E. cheiranthoides

o Flowers bright yellow, 15-20 mm. long; pods 4-10 cm. long

2 Inflorescence unbranched — 2. E. asperum

2 Inflorescence branched — 3. E. oblanceolatum

1. E. cheiranthoides L. Wormseed mustard. Annual, 30-50 cm. tall or more, ~~in depauperate specimens much less~~ commonly branched in the upper axils; ~~pubescent with appressed hairs attached at the middle;~~ leaves chiefly cauline, the lowermost dropping early, narrowly oblanceolate, 2.5-6 cm. long, acute, narrowed at the base to an indefinite petiole, the ~~lowermost~~ upper shortly petiolate, all appearing glabrate, but with some appressed hairs; flowers pale yellow, 5 mm. long, pods about 2 cm. long, 1.3 mm. wide, narrowed at the apex and base, obscurely 4-angled, pubescent with appressed hairs, ascending or erect on spreading pedicels 8 mm. long; seeds ~~in one row in each compartment,~~ narrowly elliptical, 1 mm. long. → (Cheirinia cheiranthoides Link.).

(2100 ft.)

Lake Coeur d'Alene, ~~610 m~~, Leiberg 1309; Lamb Cr., 3000 ft., Epling and Houck 10230; Granite Sta., Epling.

(Western Wallflower)

2. E. asperum (Nutt.) DC. Annual, 40-80 cm. tall, erect and unbranched; ~~pubescent with appressed hairs attached at the middle;~~ basal leaves in a tuft, soon withering and dropping, 7-8 cm. long, very narrowly oblanceolate, attenuate to an indefinite petiole, erect; cauline leaves similar, but broader, all sinuately toothed, appressed-pubescent; flowers bright yellow, 15-20 mm. long, sepals often yellow, thin; blades of the petals rotund, 4-6 mm. broad; pods ascending, terete but 4-angled, 4-10 cm. long, 1.5-2 mm. broad, appressed pubescent, tipped by the rather stout, 2-lobed style, on stout pedicels about 1 cm. long; seeds ~~in a single row~~ narrowly elliptical, 2 mm. long, apiculate or narrowly margined at the apex. → (Cheiranthus asper Nutt; Cheirinia aspera Rydb.).

Sunny rocky slopes in thin soil, 2000-6500 feet; frequent throughout our region.

3. E. oblanceolatum Rydb. Stems 40-100 cm. tall, branching in the upper parts, finely appressed puberulent; ~~with forking hairs~~; basal leaves soon withering, those on the stems oblanceolate, 4-10 cm. long, 6-12 mm. wide, subentire or shallowly denticulate, sessile, clothed like the stems; inflorescence ample, branched, at length 30-50 cm. long, the branches angled; sepals 6-7 mm. long, ovate, blunt; petals bright yellow, 15-18 mm. long; pods variable on the same plant, 3.5-7 cm. long, about 1.5 mm. thick, ascending, ashy with closely pressed forked hairs, on pedicels 8-10 mm. long; styles 1-1.5 mm. long. → (Cheirinia oblanceolata Rydb.).

Lake Coeur d'Alene, Epling and Houck 10081.

Hesperis matronalis L. Similar to Erysimum but having purple flowers; pods linear, 4-8 cm. long. An occasional escape from cultivation, but appearing native.—Pritchard, Epling and Putnam.

Family [illegible] Purslane Family.

Prostrate or procumbent herbs, soft and frequently succulent; leaves opposite or whorled, without stipules. Flowers small, perfect, regular, solitary or in clusters. Petals present or absent. Calyx 4-5 parted. Stamens 4-5 or numerous. Ovary superior or partly inferior. Fruit a capsule, circumscissile or loculicidal, or indehiscent.

Portulaca L.

Flowers whitish, axillary. Sepals 5, scarious-margined, white within, persistent. Petals none. Stamens 5, hypogynous and alternate with the sepals or 5 and alternate with the chambers of the ovary. Capsule 3- =1 chambered, loculicidal.

P. [illegible] verticillata L. Cat's-whitewood. A prostrate mat-forming annual, branching from the base, dichotomously above, the branches 15-20 cm. long, glabrous; basal leaves obovate-spatulate, 1-2 cm. long, cauline leaves 1-3 cm. long, in whorls of 4 to 8, oblanceolate in the lower axils, linear above, obtuse, or [illegible]; flowers several at each node even to the base of the plant; sepals 3-4 mm. long, oblong, [illegible]; capsule ovoid, slightly exserted from the calyx, ruptured and [illegible] by the seeds within; seeds reniform, shining.

Widely distributed weed, an escape from tropical America.

Caryophyllaceae. Pink Family.

Usually small herbs with opposite, entire leaves, more or less joined at the base, the nodes often swollen. Flowers regular, perfect, commonly in cymes. Sepals 4-5, distinct or united to form a tube. Petals 4 or 5, sometimes lobed nearly to the base and appearing double in number, frequently wanting. Stamens not more than twice the number of sepals, hypogynous or perigynous. Styles 2-5. Ovary superior, 1-(rarely 3-5) chambered. Ovules several or many, attached to the base of the ovary or to a central column.

0 Sepals united into a tubular-ovoid calyx

2 Petals without appendages at the base of the blade, 6 ~~corolla~~ pink or reddish

4 Plant very smooth and glaucous; calyx strongly 8 5-angled — 1. Vaccaria

4 Plant hoary with a soft hirsute pubescence; 8 calyx 10-ribbed — 2. Agrostemma

2 Petals bearing two erect scales at the base of the 6 blade, ~~corolla~~ white or greenish white, sometimes tinged with purple — 3. Silene

0 Sepals distinct

2 Stipules present, scarious; (introduced weeds)

4 Leaves opposite; styles 3 — 4. Spergularia

4 Leaves appearing as though several in a whorl; 8 styles 5 — 5. Spergula

2 Stipules wanting

4 Petals entire, not notched or lobed, frequently 8 smaller than the sepals and inconspicuous — 6. Arenaria

4 Petals notched or bifid, frequently wholly 8 wanting; capsule ovoid or cylindrical after opening, 3-10 valved

6 Styles commonly 3; glabrous plants; cap- 10 sule ovoid — 7. Stellaria

6 Styles commonly 5 (or 4), pubescent plants; 10 capsule cylindrical — 8. Cerastium

1. Vaccaria Medic.

Annual erect herbs with opposite leaves; stipules wanting. Flowers numerous, showy, in corymbose cymes. Calyx ovoid-tubular, more or less inflated, strongly 5-angled, the lobes short. Petals 5, without appendages, clawed. Stamens 10. Styles 2. Capsule 1-chambered, dehiscent by 4 teeth at the apex.

Pink.

1. v. vulgaris Host. Cow ~~Herb.~~ Annual, 50-60 cm. tall, glabrous and glaucous throughout, branching in the inflorescence; leaves ~~opposite~~, clasping, connate at the base, ovate to lanceolate, acute, 5-7 cm. long; flowers in an open corymbose panicle, the bracts subfoliar, pedicels slender, 3-5 cm. long; calyx 12 mm. long, urceolate, strongly 5-angled, the intervening tissue white, the lobes 3 mm. long; corolla pink, the petals 2 cm. long, the claw 14 mm., the limb 6 mm. long, obovate, notched.

An occasional roadside or field weed in the grassland, introduced from Europe.

Lychnis alba Mill. White Campion. Styles 5, alternate with the petals; capsule dehiscent by 10 teeth; a rather showy plant with several ascending stems 40-50 cm. long.

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2. Agrostemma L.

Erect herbs with opposite leaves; stipules none. Flowers ~~few~~ showy, at the ends of branches. Calyx ovoid-tubular, 10-ribbed, not inflated, the lobes subfoliar, elongate. Petals 5, red, without appendages, clawed. Stamens 10. Styles 5. Capsule 1-chambered, dehiscent by 5 teeth at the apex.

1. A. Githago L. Corn Cockle. Annual, the stems erect, branching above, hirsute with soft appressed hairs, hoary; leaves linear-lanceolate, ascending, 5-10 cm. long, acute; flowers several, on peduncles 10-25 cm. long; calyx tube about 2 cm. long, ~~strongly 10-ribbed~~ hoary with a hirsute, appressed pubescence, the lobes spreading, 2-5 cm. long, linear, subfoliar; corolla red, the limb rotate, 2-4 cm. in diameter, blades of the petals obovate, half as long as the calyx lobes.

An occasional grain field weed; naturalized from Europe.

Dianthus Armeria L. Stiffish slender erect annuals 20-40 cm. tall with several flowers in a dense terminal cluster and small rose-purple petals with toothed margins. —

not ⟶ An occasional entrant in dry pastures; native of Europe.

9. Silene L. Campion.

Annual or perennial herbs, commonly more or less viscid. Flowers perfect, usually in panicled cymes, rarely solitary; calyx tubular, usually more or less inflated, the lobes short, spreading or erect. Petals 5, narrowed to a long claw, the blade bearing usually 2 or 4 erect appendages at its base, abruptly broadened at the base of the blade, frequently with lateral teeth above the shoulder, the apex entire or notched, sometimes cleft. Stamens 10. Ovary 1-chambered, or partially 3-chambered at the base. Styles 3-4. Capsule enclosed by the calyx, opening by short recurving valves, twice the number of the st yles. Seeds kidney-shaped, tuberculate.

0 Annuals.

2 Glabrous, each internode with a median black sticky band

6 1 cm. wide — 1. S. antirrhina

2 Viscid-pubescent throughout — 2. S. noctiflora

0 Perennials.

2 Calyx globular-inflated; leaves ovate-lanceolate, glaucous;

6 introduced adventive — 3. S. latifolia

2 Calyx sometimes distended, especially in fruit, but not bladdery;

6 natives

4 Densely tufted cushion-like plants 3-8 cm. tall,
8 flowers solitary on short peduncles — 4. S. acaulis

4 Erect plants 20-40 cm. tall; flowers commonly
8 paniculate, sometimes solitary

6 Stems more or less decumbent, plants very leafy
10 throughout; ~~the~~ flowers in the upper axils — 5. S. Menziesii

6 Stems erect, the upper leaves much reduced,
10 < scale-like in the inflorescence, flowers
in terminal cymes or sometimes solitary

8 Corolla 12-18 mm. long; flowers 1-9, ~~rarely more~~ rarely more

10 Inflorescence glandular; petals notched
14 < for rarely less than 2.5-3 mm., some
at least bearing a small tooth on
either margin above the shoulder — 6. S. Lyallii

10 Inflorescence not glandular; petals
14 < notched for 1-2 mm., never toothed,
the shoulders rather acute — 7. S. multicauli

8 Corolla 25 mm. long; flowers numerous — 8. S. Scouleri

l. S. amarinum L. Sleepy Catchfly. Stems erect, stiff, branching, 10-30 cm. tall, each internode with a blackish sticky band, otherwise glabrous; leaves 1-4 cm. long, oblong-lanceolate to linear, 2-10 mm. wide, acute, sessile; flowers in terminal panicles; petals commonly pinkish, notched at the apex; calyx enlarging in age, closely investing the capsule, 10-veined, the lobes triangular-ovate, spreading; capsule 4-6 mm. long on the same plant, ovoid; seeds less than 1 mm. long, reniform, dull gray and roughened.

Throughout our region, along trails, railroads and in dry burns; usually below [illegible] feet.

2.

S. noctiflora L. Night-flowering Catchfly. Calyx-teeth linear, the tube 12-13 mm. long. (Melandrium noctiflorum Fries.)

Introduced weed. Sandpoint.

latifolia

3.

S. ~~latiflora~~ (Hill.) Britt. & Rendle. Calyx-teeth triangular, the tube membranous with prominent net-veins. Bladder Campion.

Introduced weed. Sandpoint.

4. S. acaulis L. var. exscapa (All.) D.C.. Moss Campion. Densely tufted plants 3-8 cm. tall, nearly glabrous; leaves 1 cm. long or less, ciliolate towards the base, linear, acute, the cauline pair (if present) connate for 1 mm., membranous and loosely clasping; flowers solitary, on stalks 1 cm. long or less, calyx 6-7 mm. long, purplish, cylindrical, lightly inflated, the teeth 1 mm. long or less; corolla exserted 1-2 mm., petals pink, more or less deeply notched; capsule 7-8 mm. long, subsessile.

Snowy Top Mt., 7400 ft., Warren 284.

5. S. Menziesii Hook. Menzies Pink. Stems decumbent, spreading, much branched, glandular-pubescent throughout; leaves 1-6 cm. long, lanceolate, oblanceolate or elliptical, acute or obtuse, narrowed gradually at the base, sessile and somewhat clasping, ~~both surfaces~~ pubescent; flowers in the axils of the upper somewhat reduced leaves, pedicels glandular-puberulent, .5-1.5 cm. long; calyx 5 mm. long, glandular, obscurely 10-nerved, cylindrical, obovate in fruit, the lobes ovate, 1-2 mm. long; petals white, quickly narrowed to a claw which is exserted about 2.5 mm., the blades cleft 2.5-3 mm., bearing a tooth on each side below the middle; ovary truncate and lightly 5-lobed, seated with the subequal stamens on a fleshy disc; styles 4; capsule oval, ~~terete~~, 3.5-4 mm. long, loosely covered by the calyx; seeds rotund-reniform, less than 1 mm. long, brown and minutely roughened.

Common throughout our region in open places in rather dry woods or on sunny open slopes, usually below 3000 feet.

Archibald Menzies (pronounced Menyees), surgeon and naturalist with the Vancouver expedition, ~~was preceded only by the Spanish Mocino, and the Lamarckian Née~~, in the botanical ~~exploration~~ of the Pacific Northwest.

6. S. Lyallii S. Wats. Stems 20-40 cm. tall, erect and stiffish, branched at the very base, but the stems relatively few, the lower internodes pubescent with recurved hairs, the upper 5-10 cm. long, viscid with capitate glands; leaves narrowly linear-elliptical or oblanceolate, commonly 4-5 cm. long, 3-5 mm. wide, the stem leaves frequently 7-8 mm. long, 10-12 mm. wide, acute, tapering below the middle, sessile, scale-like in the inflorescence, pubescent; flowers few, chiefly disposed in the upper two axils, pedicels .5-2 cm. long; calyx 13-15 mm. long, loosely cylindrical, inflated and narrowly campanulate at maturity, glandular, the veins purplish, rarely green, at least in flower, the intervenous tissue quite scarious, teeth ovate, 1-1.5 mm. long, the margins scarious; petals 15-16 mm. long, 3 mm. wide, dull, white, purplish on the back or purplish throughout, narrowed to a long claw, the spreading limb 3 cm. long, the notch 3 mm. deep, commonly with a small lateral tooth on each side 6 mm. below apex above the shoulder which is usually rounded, appendages two, 2 mm. long; ovary cylindrical, on a fleshy stipe 3-4 mm. long; capsule 10-12 mm. long, narrowed above, the stipe 4-6 mm. long, erect in fruit; seeds not seen. (S. Macounii Rob.).

Infrequent in dry ground or sunny ledges 2500-5000 ft., →

not → Lake Coeur d'Alene, Epling and Houck 10357; Snowy Top Mt., Anderson; Epling 5794; Priest River Exp. Sta., Epling 7847; Moyie River, Lyall.

7. S. multicaulis Nuttall. Stems commonly 20-30 cm. tall, erect and stiffish, much branched at the very base, the upper nodes 5-10 cm. long, minutely pubescent with recurved hairs, not glandular; leaves narrowly linear-elliptical or oblanceolate, commonly 4-5 cm. long, 3-5 mm. wide, the stem leaves frequently 7-8 cm. long, 10-12 mm. wide, ascending, acute, tapering below the middle, sessile, scale-like in the inflorescence, pubescent; flowers few, chiefly disposed in the upper two axils, pedicels .5-2 cm. long, commonly with 2 small bracts near the middle; calyx 13-15 mm. long, loosely cylindrical, rounded at the base, 10-veined, somewhat inflated, the teeth ovate, 1-2 mm. long, the margins scarious, the tips lightly hooded; petals 15-20 mm. long, 2.5-3 mm. wide, pubescent at the base, whitish, tinged with purple or green, narrowed to a long claw, the notch 1-1.5 mm. deep, appendages two, 2 mm. long; ovary cylindrical on a fleshy stipe 3-4 mm. long, truncate at the apex and lightly lobed, styles variable, 3-4; capsule 10-12 mm. long, narrowed above, the stipe 4-6 mm. long; seeds 1-1.2 mm. long, reniform, brown, roughened.

Infrequent on rock ledges and exposed ridges 2500-6000 feet. →

not → Fish Lake 6500 ft., Erling and Houck 9835; Scurvy Mt., Kirkwood 1949; Graves Peak, Shattuck and Fenn; Fox Creek, 3000 ft., Epling 5797; Julietta, Sandberg 342; Bearskull Mt., Epling 10327.

8. S. Scouleri Hook. Root stout, fusiform, stems several, ascending, strict, 30-60 cm. tall, glandular-pubescent or viscid; lower leaves oblanceolate, their blades 5-8 cm. long, tapering to a subequal slender petiole, densely puberulent; cauline leaves narrowly oblong or oblong-lanceolate, acute, connate, reduced upwards, erect; flowers 1-3, axillary, erect, pedicels erect, about 1 cm. long; calyx narrowly cylindrical, scarious between the veins, glandular-pubescent, 10-veined, 12-14 mm. long, the teeth ovate, scarious margined, ciliate; corolla 25 mm. long, petal-blades 4-5 mm. long, the notch 2 mm. deep, the lobes again emarginate, lateral teeth two, blunt, more or less lacerate, appendages 2; stamens exserted; ovary cylindrical, stipitate; capsule ovoid, 1 cm. long, stipitate; seeds 1 mm. long, reniform, brown and shining, minutely roughened.

Dry ground, usually in association with yellow or lodgepole pine, mostly at lower elevations.

4. Spergularia J. & C. Presl.

Low herbs, commonly in sandy soil. Leaves filiform; stipules scarious. Flowers in terminal cymes. Sepals 5. Petals 5, entire. Stamens 2-10. Capsule commonly 3-valved.

1. S. rubra (L.) J. & C. Presl. Sand Spurrey. A low herb with numerous tufted slender stems, 10-15 cm. long, from a short tap root; leaves linear, commonly 1 cm. long, opposite, with several smaller leaves fascicled in the axils, all glabrous, the stipules lanceolate, 3-4 mm. long, scarious; pedicels 3-5 mm. long; calyx 3.5 mm. long, the sepals oblong-obtuse, scarious margined, glandular-pubescent; corolla pinkish, somewhat longer than the calyx; the stamens yellow; capsule ovoid, included within the persistent calyx, reddish; seeds minutely roughened. (Tissa rubra Britton).

A frequent weed in the grassland, forming mats over dry ground, barren roadsides, paths and around buildings.

5. Spergula L.

Leaves appearing whorled due to fascicles of similar leaves in the axils; stipules scarious. Flowers in cymose panicles. Sepals 5. Stamens 10 or 5. Styles 5. Capsule 5-valved, the valves opposite the sepals.

1. S. arvensis L. Corn Spurrey. Annual, 30-50 cm. tall, diffusely branched at the base, the stems ascending, shortly glandular-pubescent; leaves 2-3 cm. long, filiform; sepals 3.5-4 mm. long, narrowly ovate, somewhat longer in fruit; petals white, subequal to the sepals; capsule ovoid, half again as long as the calyx.

An occasional weed in fields and waste places in the grassland; naturalized from Europe.

6. Arenaria L. Sandwort.

Low, usually tufted herbs; leaves oval or narrowly linear, sessile. Flowers in terminal few-flowered cymes or solitary. Sepals 5, commonly oblong-lanceolate, usually with scarious margins. Petals 5, entire or notched at the apex, rarely wanting, often shorter than the sepals. Stamens 10. Styles 3-5. Capsule little exserted, in general ovoid, splitting into 3, 5 or 6 valves; seeds reniform.

o Leaves ovate, oval or narrowly elliptical

2 Leaves oval or narrowly elliptical, 1-4 cm. long, 6 5-10 mm. wide; flowers commonly 3-5

4 Stems obtusely angled; sepals acuminate — 1. A. macrophylla

4 Stems terete; sepals obtuse — 2. A. lateriflora

2 Leaves ovate, 4-5 mm. long; flowers numerous — 3. A. serpyllifolia

o Leaves linear to filiform, rarely 2 mm. wide

2 Plants 3-12 cm. tall

4 Sepals ovate, 1-veined — 4. A. Rossii

4 Sepals lanceolate or oblong, 3-veined

6 Densely tufted, mosslike, the leaves fascicled; flowers solitary, petals somewhat longer than the sepals — 10 — 5. A. obtusiloba

6 Tufted, but rather loosely, the leaves crowded below, but not fascicled; petals 2/3 the length of the sepals — 10

8 Stems hirtellous and somewhat glandular above; veins of sepals equally prominent — 12 — 6. A. verna

8 Stems glabrous; midvein of sepals more prominent than lateral pair — 12 — 7. A. pusilla

2 Plants 10-25 cm. tall

4 Flowers in dense spherical glomerules — 8. A. congesta

4 Flowers in open cymes — 9. A. capillaris

1. A. macrophylla. Hook. Low, decumbent, leafy herbs; stems obtusely angled, channelled, 10-15 cm. tall, from slender creeping rootstocks, puberulent, the internodes usually shorter than the leaves; leaves narrowly oblong-lanceolate, 2-4 cm. long, 6-6 mm. wide, acute at both ends, glabrous; flowers 2-5 in terminal cymes little exceeding the leaves; pedicels 1.5-2 cm. long, bracts 2 mm. long, scarious; sepals 4-5 mm. long, ovate, acuminate, the margins thin but hardly scarious; petals and stamens barely exserted; capsule ovoid, the valves 5, about equal to the calyx, oblong, subacute, curling; seeds 1.5 mm. long, reniform, black and glistening, minutely roughened, with a small appendage at the hilum. [illegible] macrophylla [illegible].

Throughout our region on wooded slopes, 2500-6000 feet or more.

2. A. lateriflora L. Low, decumbent, leafy herbs; stems 10-15 cm. long, from slender, creeping rootstocks, terete, not at all angled, puberulent, the internodes usually equalling or longer than the leaves; leaves oval, or elliptical, obtuse at both ends, 1-1.5 cm. long, 8-10 mm. wide, glabrate, or minutely roughened, ciliolate on the margin and on the veins beneath; flowers 1-3 in terminal cymes somewhat longer than the leaves, pedicels 1-2 cm. long, bracts 2 mm. long, scarious; sepals 2-2.5 mm. long, ovate, obtuse, scarious-margined; petals half again to twice as long as the sepals, obovate, the stamens included, the filaments woolly in the lower half; capsule ovoid, 4-5 mm. long, the valves 5, lanceolate, acute, erect; seeds 1 mm. long, reniform, black and shining, smooth, with a small appendage at the hilum. (Moeringia lateriflora (Fenzl.).

Rare in our region. →

→ Low meadows on upper St. Maries river, 3000ft., Leiberg 1115; Weippe, Epling.

3. A. serpyllifolia L. Annual, 10-15 cm. tall, much branched, puberulent throughout, internodes several times the length of the leaves; leaves ovate, 4-5 mm. long, the upper sessile, the lowermost shortly petiolate, acute, minutely hirtellous; flowers very numerous in panicled cymes; sepals 3.5 mm. long, lanceolate, acute or acuminate, the margin scarious; petals 1.5 mm. long, elliptical, anthers pink; capsule flask-shaped, the valves 5, lanceolate, acute; seeds .4 mm. long, reniform, minutely papillose, dull black.

Occasional in dry ground, along roadways below 3000 feet. →

→ Lake Coeur d'Alene, 2080ft., Leiberg 1308; Epling and Houck 10018; Hope, Epling.

4. A. Rossii R. Br. Minute tufted herbs with slender matted root-stocks, 2-4 cm. tall; stems filiform, the internodes about equal to the leaves, glabrous; leaves 6-15 mm. long, about .5 mm. wide, glabrous, with a tiny spine at the tip, 1-veined, scarious and connate and loosely clasping at the base; flowers solitary on filiform peduncles 1-2 cm. long; sepals ovate, 1.6 mm. long, 1-veined; obtuse with a narrow scarious margin, spreading in fruit; petals rotund-ovate, 1 mm. long, the stamens somewhat longer: styles 5; capsule 3 mm. long, the valves lanceolate-oblong, truncate at the apex; seeds .2-.3 mm. long, brown, reniform-triangular, very minutely papillose.

Infrequent in springy ground along trails or in sandy river bottoms, 3000-6000 feet, throughout our region. →

North → Upper Priest River, 3000 ft., Epling 7462; Hughes Fork, 3000 ft., Epling 7399; Fish Lake, 6000 ft., Epling and Houck 9785.

5. A. obtusiloba (Rydb.) Fern. Low, caespitose mosslike herbs, much branched at the base, the stems covered with old leaves; leaves of sterile branches densely crowded, fasciculate, 5-6 mm. long, .5 mm. wide, 1-veined, glabrous, but ciliolate on the margin, flowering stems 4-5 cm. tall, or less, the internodes 2-3 times the length of the somewhat smaller leaves, glandular-puberulent; flowers solitary, sepals 4-4.5 mm. long, oblong or oblong-lanceolate, obtuse, scarious margined toward the tip, 3-veined, glandular-puberulent, often reddish; petals reddish, oblong, somewhat longer than the calyx, stamens subequal; styles 3; capsule lanceolate in outline, about equalling the sepals, valves 3, lanceolate, narrowly truncate and lightly notched at the apex; seeds brown .6-.7 mm. long, reniform, lightly papillose. (Alsinopsis obtusiloba Rydb.).

Rare in our region on exposed ridges and peaks above 6000 feet. →

North → Stevens Peak, 6450 ft., Leiberg 1476; Snowy Top Mt., 7000-7400 feet, Epling 7381, 7385; Warren 305; Anderson.

6. A. verna L. var. pubescens (C. & S.) Fernald. Low herbs, loosely branching at the base, tufted, 6-12 cm. tall, stems filiform, the lower nodes shorter than the leaves, the upper much longer, hirtellous and glandular; leaves 5-8 mm. long, about .5 mm. wide, hirtellous and glandular, usually blunt, 3-veined, connate but hardly scarious at the base; flowers in terminal cymes of 2-4 or solitary, pedicels 1-1.5 cm. long; sepals oblong-lanceolate, 3 mm. long, 3-veined, acute, with a scarious margin; petals rotund-ovate, 2.5 mm. long, the stamens subequal; capsule narrowly ovoid, the valves 3, oblong, truncate at the apex, recurved; seeds brown, .6 mm. long, reniform, minutely papillose.

Rare in our region.

now → Sand bars, Upper Priest Riv., 3000 ft., Epling 7551.

7. A. pusilla Wats. Inconspicuous annuals 2-6 cm. tall, branching from the base, the stems glabrous, threadlike; leaves opposite, lanceolate, 3-5 mm. long; flowers solitary in the axils on very slender hairlike pedicels 3-10 mm. long; sepals lanceolate, acuminate, 3-veined, 3 mm. long; petals shorter than the sepals, lanceolate or eliptical or entirely wanting; stamens 3; capsule 2.5 mm. long.

near Moscow, Abrams 544.

Local, stony ground.

8. A. congesta Nutt. Densely tufted perennials, the stems erect, 20-40 cm. tall, much branched at the base, wiry, glabrous throughout, pale and glaucous; leaves on the short sterile branches densely fascicled, 3-8 cm. long, linear, stiffish, tapering evenly upward, tipped with a short spine, the margins ciliolate and rough to the touch, those of the flowering stems similar, shorter than the internodes, reduced upwards; flowers in dense terminal glomerules 1-1.5 cm. in diameter, bracts ovate or ovate-lanceolate, acuminate, scarious except for the vein, minutely ciliolate; sepals 5 mm. long, broadly lanceolate, 3-veined, green in the middle, white-scarious on the margins and minutely ciliolate; petals linear-oblanceolate, 8 mm. long, the exserted portion spreading-recurved; stamens subequal to the petals, the anthers flesh color; styles 3; valves 6; capsule ovoid; seeds 3 mm. long, black, minutely papillose, rugose, strongly flattened. (A. cephaloidea Rydb.).

Occasional throughout our region on rather dry sunny slopes, 2000-6000 feet.

→Thatuna Hills, Epling and Houck 9220; Forks St. Maries R., ~~1100 m.~~ 3575 ft (666 ft.) Leiberg 1164; Wiessner's Peak, ~~2050 m.~~, Leiberg 1380; Lake Coeur d'Alene, Epling and Houck 10019; Potato Peak, Kootenai County, Elmer 325; Kooskooskee R., Geyer 466; Little Potlatch R., Sandberg 478.

9. A. capillaris Poir. var. formosa (Fischer) Regel. Tufted erect perennials, 10-20 cm. tall, branching at the base, glabrous below, glandular-puberulent in the upper parts; leaves on the sterile branches crowded, 2-4 cm. long, linear, tapering evenly, tipped with a short spine, the margins minutely ciliolate or entire, those of the flowering stems similar, 1.5-2 cm. long or less, reduced upwards; flowers 3-15 in a terminal open cyme, bracts 3 mm. long, scarious, lanceolate, pedicels 1-2 cm. long; sepals 3-3.5 mm. long, ovate or oval, obtuse, broadly scarious-margined, 1-veined; petals about twice as long, oblanceolate, spreading, the stamens shorter, violet; capsule ovoid, 6 mm. long, the valves 6, lanceolate, acute; seeds 1.3 mm. in diameter, strongly flattened, minutely papillose, rugose. (A. formosa Fisch.).

Rock outcrops and exposed but moist crevices on the high peaks, 3000-7000 feet, throughout our region.

7. Stellaria L. Chickweed.

Low commonly glabrous herbs with slender, often reclining or decumbent stems. Leaves ovate to narrowly lanceolate. Flowers in terminal cymes or solitary in the upper axils. Sepals lanceolate, subscarious, distinct, commonly 5. Petals white, deeply 2-cleft, appearing double the actual number, often wanting, Stamens 3-10. Styles 3-5. Capsule ovoid, 1-chambered, opening at the apex by as many valves as styles.

O Stems with a conspicuous longitudinal line of pubescence

2 Leaves 4-8 cm. long — 1. S. oxyphylla

2 Leaves 2 cm. long or less — 2. S. media

O Stems glabrous or essentially so

2 Leaves or the inflorescence reduced to scarious or membranous bracts

4 Branches of the inflorescence widely spreading, usually horizontal, the flowers appearing pendulous — 3. S. umbellata

4 Branches of the inflorescence ascending, the pedicels erect or decurved, the flowers however not appearing pendulous

6 Erect annuals 10-15 cm. tall with very slender stems and leaves less than 1 cm. long — 4. S. nitens

6 Perennials with weak, often reclining stems growing usually amongst other herbage and mostly concealed by it; leaves 1-4 cm. long

8 Corolla 6 mm. long; pedicels erect, remaining so in fruit; leaves mostly 1.5-2.5 mm. wide — 5. S. longipes

8 Corolla 4 mm. long; pedicels soon becoming decurved; leaves mostly 3-5 mm. wide — 6. S. longifolia

2 Leaves of the inflorescence smaller but green and herbaceous, not membranous or scarious

4 Leaves lanceolate or elliptical to linear, at least four times as long as broad

6 Leaves prevailingly less than 3 mm. wide; pedicels erect, remaining so in fruit — 5. S. longipes

6 Leaves prevailingly 6-15 mm. wide;
10 pedicels soon decurved or reflexed

8 Leaves usually broadest near the
12 base; sepals 3-4 mm. long — 7. S. borealis

8 Leaves usually broadest near the
12 middle; sepals 5-6 mm. long — 1. S. oxyphylla

4 Leaves ovate or ovate-lanceolate, 2-3
8 times as long as broad

6 Sepals acute, thin and membranous;
10 seeds pitted — 8. S. crispa

6 Sepals obtuse, green and opaque with
10 a narrow margin; seeds minutely
wrinkled — 9. S. obtusa

1. S. oxyphylla Robinson. Stems decumbent, rooting at the base, shining, glabrous except for a thin line of minute pubescence; leaves 4-8 cm. long, 1-1.5 cm. wide, widest at the middle, tapering and acute at both ends, glabrous; flowers few, the lowermost opposite the upper leaves, the uppermost subtended by reduced leaflike bracts, not scarious, pedicels 1.5-3 cm. long, reflexed in age; sepals acute, 5-6 mm. long, with narrow scarious margins; petals 3-4 mm. long; capsule subequal to the sepals, obtuse.

Wiessners Peak, Sandberg 608.

Wet ground.

2. S. media (L.) Cyrill. Common Chickweed. Low diffuse annual, the stems decumbent or prostrate, branching, marked by a vertical line of hairs, otherwise glabrous; leaves 1 cm. long or less, ovate, subacute, rounded at the base, glabrous, on ciliolate petioles half as long; cymes leafy, the upper leaves reduced; pedicels 1-2 cm. long, filiform; calyx 4-5 mm. long, campanulate, the sepals oblong, scarious toward the tip, little exceeded by the petals; capsule little exserted.

A frequent weed around dwellings and in waste places.

5. S. longipes Goldie. Stems slender, not branched, shining, from creeping slender branched rootstocks; leaves narrowly lanceolate to linear, sessile, acute, shining, 1-3 cm. long, 1.5-2.5 mm. wide; flowers few, borne in the upper axils, pedicels ascending or erect, 2-10 cm. long; sepals 3-5 mm. long, ovate-lanceolate, acute, scarious margined, 3-5-veined; petals 6 mm. long, rather opaque; fruit not seen.

In moist meadows amongst herbage, often hidden by it. → Santa, Ebling; Headquarters, Epling; Sanders, Christ 1545.

6. S. longifolia Muhl. Weak decumbent or reclining plants, glabrous throughout; leaves 2-4 cm. long, 2-5 mm. wide, narrowly oblong, tapering both ways from the middle, acute at both ends; bracts of the diffuse cymes scarious, 3-4 mm. long, pedicels 2-4 cm. long, very slender, recurving or deflexed in fruit; calyx 3-4 mm. long, sepals lanceolate, acute, with scarious margins, 3-veined, the veins usually parallel; petals 4 mm. long; styles 3-5; capsule somewhat longer than the calyx; seeds light brown, 1.2 mm. long, minutely pitted, the pits more or less wavy.

Infrequent in boggy meadows. →

→ Lamb Cr., Epling and Houck 10236; Hughes Meadow, 3000 ft., Epling 7352; Mud Lake, Sandberg 740.

3. S. umbellata ~~Turcz.~~ Turcz. Rootstocks very slender, creeping, the stems usually decumbent at the base, 5-25 cm. tall, glabrous; leaves obovate or spatulate towards the base, oblong-ovate or ovate above, 8-12 mm. long, 3-10 mm. wide, mostly acute, sessile, the upper internodes 3-5 times as long as the leaves; bracts of terminal cymes mostly scarious, 2-5 mm. long, the principal branches nearly horizontal, the secondary branches very slender, deflexed, the flowers appearing pendulous; pedicels 0.5-3 cm. long; sepals 2.5-3 mm. long, narrowly ovate, acute, weakly 3-nerved; petals minute or wanting; stamens half as long as the sepals; capsules 4 mm. long, pointing downwards; seeds scarcely 1 mm., minutely rugulose. (Alsine baicalensis Cov.).

Meadow, Fish Lake, 6000 ft., Epling and Kempf.

4. S. nitens Nutt. Tufted annuals, the stems erect, 10-15 cm. tall, unbranched except in the inflorescence, glabrous, or somewhat puberulent in the lower parts; leaves chiefly in the lowermost axils, 1 cm. long or less, oblong, acute, sessile, glabrous, the lowermost spatulate; cymes on subequal peduncles occupying most of the stems, the bracts 2-5 mm. long, scarious; pedicels 1-3 cm. long, very slender; calyx 4 mm. long, the sepals shining, lanceolate, very acute, scarious-margined; corolla subequal to the calyx, often wanting; capsule barely exserted.

Dry gravelly slopes at low elevations.

7. S. borealis Bigel. var. Bongardiana Fernald. Stems weak, ascending, acutely 4-angled, glabrous; leaves 2-5 cm. long, 6-12 mm. wide, narrowly lanceolate, tapering evenly, acute, narrowed and rounded at the very base, glabrous, ascending; bracts of the cyme leaf-like but smaller, 3-8 mm. long, not scarious; pedicels 2-4 cm. long, very slender, recurving or deflexed in fruit; calyx 3-4 mm. long, the lobes 3-veined, lanceolate or narrowly lanceolate, acute, with scarious margins, the margins together scarcely as wide as the green center, spreading; petals 2.5 mm. long; anthers violet; styles 3; capsule narrowly elliptical, ~~half again as long as the sepals~~; seeds .7-.8 mm. long, shallowly pitted, light brown, flowers all axillary.

Thatuna Hills, 2500 ft., Epling and Houck 9055, ~~9178~~; Fish Lake, 6000 ft., Epling and Houck 9704; ~~Julietta, Sandberg 34~~ upper St. ~~Mary's R., 950 m.~~ Maries (3000 ft.), Leiberg 1097; Osier Cr., Kirkwood 1903; Headquarters, Epling.

8. S. crispa C. & S. Stems slender but ascending, or decumbent, glabrous throughout; leaves 1-2 cm. long or less, ovate to ovate-lanceolate, acute or acuminate, rounded at the base and narrowed to a short petiole or sessile; flowers axillary on pedicels 1-2 cm. long, recurved or deflexed in fruit; calyx 3.5-4 mm. long, sepals lanceolate, very acute, thin and subscarious, the white margins nearly as broad as the green middle portion; petals very thin, much shorter than the sepals or often wanting; capsule elliptical, exserted 1-2 mm.; seeds about .8-1 mm. long, light brown, rugulose-pitted.

Frequent throughout our range in springy places along trails, along subalpine streams, chiefly above 5000 feet, but extending as low as 2500 feet in the Thuja type; often growing with S. obtusa.

9. S. obtusa Engelm. Low mat forming plants, the stems very slender, 8-12 cm. long; leaves lanceolate to narrowly ovate, 1 cm. long or less, acute or subacuminate, rounded at the base and tapering to a short ciliolate petiole, otherwise glabrous; flowers solitary in the axils on pedicels 8-10 mm. long, deflexed in age; sepals 2.5-3 mm. long, oblong-ovate, obtuse or subacute, green with a very narrow scarious white margin; petals .5 mm. long, obovate or commonly wanting; styles 3-4; capsule ovoid, 3-3.5 mm. long, valves 3-5, scarcely exceeding the sepals; seeds finely papillose in lines, appearing ridged, less than .5-.6 mm. in diameter. (A. viridula Piper).

Upper Priest R., 3000 ft., Epling 7449; ~~7511, 7450~~ Wiessner's Peak, 5500 ft. ~~1700 m.~~ Leiberg 1396; Fish Lake, 6000 ft., Epling and Houck 9783; Headquarters, Epling; Fish Lake Creek, Epling and Kempf.

Wet ground.

8. Cerastium L. Powder Horn.

Low, rather diffuse herbs with flat, usually hairy leaves. Flowers in terminal dichotomous cymes. Sepals 5, thin and subscarious. Petals 5, commonly 2-lobed or 2-cleft, frequently wanting in some flowers on the same plant. Stamens 10. Styles usually 5, opposite the sepals. Capsule 1-chambered, cylindric, often curved, membranous, drying straw-color and shining, dehiscing at the summit by 8 or 10 teeth. Seeds roughened.

0 Petals half again or twice as long as the calyx, conspicuous

2 Leaves oblong or oblanceolate; petals 10-12 mm. long — 1. C. Leibergii

2 Leaves linear; petals 7-8 mm. long — 2. C. strictum

0 Petals hardly exserted or wanting

4 Pedicels 5-12 mm. long — 3. C. vulgatum

4 Pedicels 1-3 cm. long or more — 4. C. nutans

1. C. Leibergii Rydb. Stems 30-40 cm. tall, the upper internodes 5-10 cm. long, pubescent and more or less glandular throughout; pubescence retrorse in lower parts; leaves 2-3 cm. long, 5-10 mm. wide, oblong-lanceolate, the mid-vein prominent beneath, acute at the apex, sessile, both surfaces glandular-pubescent; cymes 10-25 cm. long, the bracts 5-8 mm. long, thin; calyx-lobes lanceolate, glandular, 6 mm. long, the margins scarious; petals 10-12 mm. long, white, deeply notched; stamens and style half the length of the petals; capsule 8-10 mm. long, lightly curved upwards; seeds 1 mm. in diameter, brown, muriculate.

Occasional in meadows at lower elevations.

Meadow near Pierce, Ebling; Upper St. Maries R., ~~970 m~~ 3200 ft., Leiberg 1103; Upper Ferry, Clearwater R., Sandberg et al. 49;

2. C. strictum L. Perennial, tufted, the stems ascending, 10-15 cm. long, retrorsely hirsute, the internodes 1/2 the length of the leaves or less; leaves linear or linear-oblanceolate, 1-2 cm. long, 1-3 mm. wide, sessile, subvillous; inflorescence glandular-villous, cymose on peduncles 5-8 cm. long, flowers several in each cyme, pedicels 1-2 cm. long, the subtending bracts scarious, 3-5 mm. long, ovate; calyx 5.5 mm. long, the sepals oblong-ovate, the margins scarious; petals half again as long as the sepals, 2-lobed at the summit; capsule exceeding the sepals 3 mm., 5 mm. in diameter, the teeth 10; seeds not seen.

Dry, sparsely inhabited sunny slopes, forming considerable colonies with Arctostaphylos uva-ursi in the Clearwater Forest.

→3. C. vulgatum L. Common Chickweed. Stems 10-40 cm. long, glandular→ =/
→pubescent; leaves 1-2.5 cm. long, 3-6 mm. wide, oblong, oblanceolate or
→spatulate, obtuse, cymes 5-15 cm. long, bracteate; calyx lobes 5 mm. long, enlarging in fruit, oblong-lanceolate, scarious margined; corolla subequal to the calyx or shorter, white, petals 2-cleft; capsule commonly half again as long as the calyx; seeds .4 mm. in diameter, dull brown, evenly tuberculate.

A frequent weed in fields and waste places or around dwellings; chiefly below 3000 feet.

4. C. nutans Raf. Stems 20-40 cm. tall, erect, shortly and thinly villous and glandular, grooved; leaves 2-4 cm. long, oblong to oval or oblong-lanceolate, the lowermost spatulate; cymes about 15 cm. long, the bracts 5-8 mm. long, foliar; calyx 4-4.5 mm. long, 6 mm. in fruit, the lobes lanceolate, scarious margined, glandular-hispidulous, pedicels 1-3 cm. long or more; corolla subequal to the calyx, or a little longer; capsule 10-12 mm. long, curving upwards, decurved and nodding on the pedicel.

Pend Oreille River, Lyall; reported by Piper from Lake Coeur d'Alene; ~~Cooke's Town~~
no ¶ →~~Mount 1404~~ Clark's Fork, Christ 1409.

Portulacaceae. Purslane Family.

~~Small annual or perennial~~ rather fleshy glabrous herbs with entire leaves, alternate or opposite. Flowers regular, perfect. Sepals 2. Petals commonly 5, quickly withering. Stamens as many as the petals and opposite them, attached to their bases or sometimes numerous. Ovary superior, 1-chambered. Fruit a capsule, valves 2 or 3, or circumscissile.

0 Low spreading herbs, flowers sessile, not in terminal
4 racemes — 1. Portulaca

0 Low herbs, commonly erect; flowers on slender pedicels,
4 < recurving in age, disposed in terminal racemes, rather showy for the most part

2 Stems from deep seated globose corms; leaves usually
6 2, opposite, subtending the inflorescence — 2. Claytonia

2 Stems from short tap roots, fibrous roots or root-
6 < stocks; leaves mostly basal, the upper alternate, or a single pair and opposite, sometimes joined, forming disc through which the stem passes — 3. Montia

a

/. Portulaca L. Purslane.

Ours low glabrous fleshy annual herbs, with chiefly alternate leaves; stipules scarious or wanting. Calyx lobes 2, forming a short tube at the base, partially adnate to the ovary. Stamens variable, 7-20. Capsule globose, circumscissile.

1. P. oleracea L. Leaves obovate, oblanceolate, or spatulate, .5-2 cm. long, obtuse or lightly notched, cuneate; calyx-lobes ovate, about 5 mm. long, petals pale yellow, opening only when sunny, notched; stamens 7-12; capsule 4-5 mm. long, seeds black, glistening, rotund-flattened, pitted.

An occasional weed in dry situations. Introd. from Trop. Am.

2. Claytonia Gronov. Spring Beauty.

Low, glabrous, rather succulent herbs from globose deep-seated corms. Leaves chiefly basal (wanting in ours), stems bearing a single opposite cauline pair near the inflorescence. Flowers in a loose terminal raceme, reflexed in fruit, commonly white or veined with pink. Sepals 2, persistent, enclosing the capsule. Petals 5. Stamens 5, seated on the bases of the petals. Capsule 3-valved, 3-6 seeded.

1. C. lanceolata Pursh. Leaves 2-5 cm. long, oblong-lanceolate, acute at both ends, subsessile, subtending the inflorescence; raceme 5-8 cm. long, pedicels 1.5-2.5 cm. long, only the lowermost bracted, deflexed in fruit; calyx 3.5-4 mm. long; corolla 10-12 mm. long, white or pink, veined with a deeper rose-color, the petals entire or lightly notched; anthers pink; capsule shorter than the calyx; seeds ovoid, flattened, 1.5 mm. long, black and very shiny.

Throughout our region at all elevations, appearing in very early spring. Lolo Trail, L. Lewis (type).

3. Montia L.

Low, glabrous, rather succulent herbs. Leaves alternate, opposite or basal. Flowers in terminal racemes, reflexed in fruit, commonly white or veined with pink. Sepals 2, persistent, enclosing the capsule; petals 3-5, equal or unequal, distinct or lightly joined at the base. Stamens 5 or 3. Capsule 3-valved, the valves curling inward after dehiscence; seeds 1-3, small, usually black and shining.

0 1a. Stem leaves opposite, either numerous or a single pair subtending the inflorescence, these in one species united to form a disc through which the stem passes (4)

2 Stem leaves numerous, basal leaves none or few, plants more or less decumbent or prostrate (6)

4 Leaves commonly 1 cm. long, 1-2 mm. wide — 1. M. fontana

4 Leaves commonly 2-5 cm. long, 5-10 mm. wide — 2. M. chamissoi

2 Stem leaves a single pair, opposite; ~~(joined in one species, forming a disc)~~; basal leaves several to numerous; plants commonly erect (6)

4 Stem leaves joined and forming a round disc through which the stem passes (8) — 3. M. perfoliata

4 Stem leaves free, not forming a disc

6 Plant 10-15 cm. tall; leaves linear or oblanceolate-spatulate (10) — 4. M. arenicola

6 Plant 20-30 cm. tall; leaves ovate or kidney-shaped (10)

8 Each pedicel subtended by a bract .5-1 cm. long (12) — 5. M. sibirica

8 Only the lowermost pedicel or none bracted (12) — 6. M. asarifolia

0 1b. Stem leaves alternate

2 Basal leaves few or none, stem leaves 1-3 cm. long, expanded and scarious margined at the base (6)

4 Sepals 2.5-4 mm. long, exceeded by the petals — 7. M. linearis

4 Sepals 2.5-3 mm. long, equal to or exceeding the petals (8) — 8. M. dichotoma

2 Basal leaves numerous, fleshy, in a rosette; stem leaves .5-1 cm. long, not scarious margined at the base (6) — 9. M. parvifolia

1. M. fontana L. Water Chickweed. Annual, stems numerous from grasslike roots, slender, 5-15 cm. tall; leaves opposite, 5-10 mm. long, oblanceolate; flowers few, racemes 1-2 cm. long subtended by a single bract, pedicels 3-8 mm. long; petals 2 mm. long, white, unequal in size, united at the base; stamens 3, capsule 1.5 mm. long, flattened globose, the valves curling inwards after dehiscence, seeds less than 1 mm. long, obovoid, roughened.

To be expected in our region in the mountains of the south, in muddy places and along cold streams.

2. M. Chamissoi (Ledeb.) Dur. and ~~Jac~~ Jacks. Toad Lily. Low spreading plants, the stems decumbent or ascending, commonly 15-30 cm. long, branching, with numerous slender stolons, these bearing bulblets at their tips; leaves in several pairs, fleshy, opposite, commonly 2-4 cm. long, obovate or oblanceolate, obtuse, acuminate at the base; flowers few, raceme 2-3 cm. long, often shorter than the branches, pedicels commonly 1-1.5 cm. long, only the lowermost bracteate, or bractless throughout; calyx 3 mm. long, the sepals rotund; corolla white or pink, the petals 7-8 mm. long, commonly entire; capsule shorter than the calyx, 1-2-seeded, the seeds ovoid, flattened, glistening but minutely roughened. (Claytonia Chamissoi Ledeb.; Crunocallis Chamissonis Rydb.).

Little Potlatch R., Sandberg et al 398.

3. M. perfoliata (Donn) Howell. Miner's Lettuce. Annual from a small taproot, stems several, commonly erect, 10-30 cm. tall; leaves chiefly basal, often nearly wanting, the blade rhomboidal-ovate to oblanceolate, 1-2 cm. long, tapering to a slender petiole commonly 3-4 times as long, varying on the same plant to nearly linear, the stem leaves 2, united to form a rotund, but often angled, disc, 1-3 cm. in diameter which subtends the inflorescence; racemes 3-8 cm. long, commonly interrupted, the flowers grouped in small clusters; pedicels 5-8 mm. long, only the lowermost subtended by a bract; sepals 2.5-3.5 mm. long, petals white (or pinkish), 5-6 mm. long; capsule about equal to the sepals, seeds black and shining, oval, flattened, nearly smooth, 1.5-2 mm. long. (Claytonia perfoliata Donn; Limnia perfoliata Haw.).

H Rare in our region. Lake Pend Oreille, Leiberg.

var. depressa (Gray) Jeps. Similar but smaller and depressed, commonly reddish, basal leaves broadly ovate; stem leaves only partially united on one side, still forming a partial disc; raceme commonly much shortened, even forming a loose cluster in the disc. (Claytonia parviflora var. depressa Gray; Limnia depressa Rydb.). Frequent on moist gravelly slopes or ledges in the mountains, gravelly prairies on the grassland.

4. M. arenicola (Henderson) Heller. Tufted annual 10-15 cm. tall, stems numerous, slender; basal leaves 3-6 cm. long, narrowly oblanceolate to linear, 1-3 mm. wide, tapering to a narrow base, stem leaves linear and scale-like, reduced upwards; racemes 5-8 cm. long, pedicels 1-1.5 cm. long, each bracted; calyx 3 mm. long; corolla rose-colored, 6-7 mm. long; capsule subequal to the calyx, seeds less than 1 mm. long, ovoid-flattened, black and very shiny. (Claytonia arenicola Henderson; Limnia arenicola Rydb.).

To be expected in dry places in the southern part of our region.

5. M. sibirica (L.) Howell. Annual from a small tap root; stems several, erect, 20-30 cm. tall; basal leaves ovate, the blades 1-4 cm. long, rounded at the base, even subcordate, lightly acuminate, narrowed to a petiole 5-10 cm. long; stem leaves 2, opposite, 2-3 cm. long, broadly ovate, and clasping but distinct; racemes commonly 10-12 cm. long, pedicels 1.5-3 cm. long, deflexed but not curving in fruit, each subtended by a membranous green bract .5-1 cm. long; calyx 3 mm. long; corolla 8 mm. long, the petals white, veined with rose-purple, notched, oblong, narrowed to a claw at the base; anthers pink; capsule shorter than the sepals; seeds ovoid, flattened, black and shining, nearly smooth, 1.5-1.8 mm. long. (Claytonia sibirica L. Limnia sibirica Haw.).

Occasional throughout our region in shaded moist woods, mostly below 5000 feet.

6. M. asarifolia (Bong.) Howell. Stems several, 20-30 cm. tall, from a slender horizontal rootstock; basal leaves broadly ovate, the blades 3-4 cm. long, very obtuse, cordate at base, borne on petioles 10-15 cm. long; cauline leaves 2, opposite, rotund-ovate, rather acute, rounded at the base, distinct, 2-3 cm. long; raceme 10-12 cm. long, bractless, pedicels 1.5-2 cm. long; calyx lobes 4-4.5 mm. long, often purplish; corolla 10-12 mm. long, white, the petals retuse but not deeply notched, anthers pink, stamens half the length of the petals; capsule shorter than the calyx, 1-2 seeded, the seeds obovate, flattened, black and shining, nearly smooth. (Claytonia asarifolia Bong., Limnia asarifolia Rydb.).

The common species of our region, abundant in moist shaded woods from 2500 to 6000 feet, best developed at the higher elevations.

7. M. linearis (Dougl.) Greene. Annual from grass-like roots, branching from the base, the stems numerous, forming a small tuft 5-20 cm. tall; leaves narrowly linear and alternate throughout, 1-4 cm. long, 1-1.5 mm. wide, sessile and clasping; racemes 1-sided, only the lowermost flowers with small bracts, pedicels .5-1 cm. long; sepals becoming 4 mm. long, broad and rounded, pink, persistent and chaffy in age; petals scarcely 1 mm. longer, white, distinct, unequal; stamens 3; capsule shorter than the sepals; seeds 1 mm. broad, lenticular, black and shining. (Claytonia linearis Dougl.; Montiastrum lineare Rydb.).

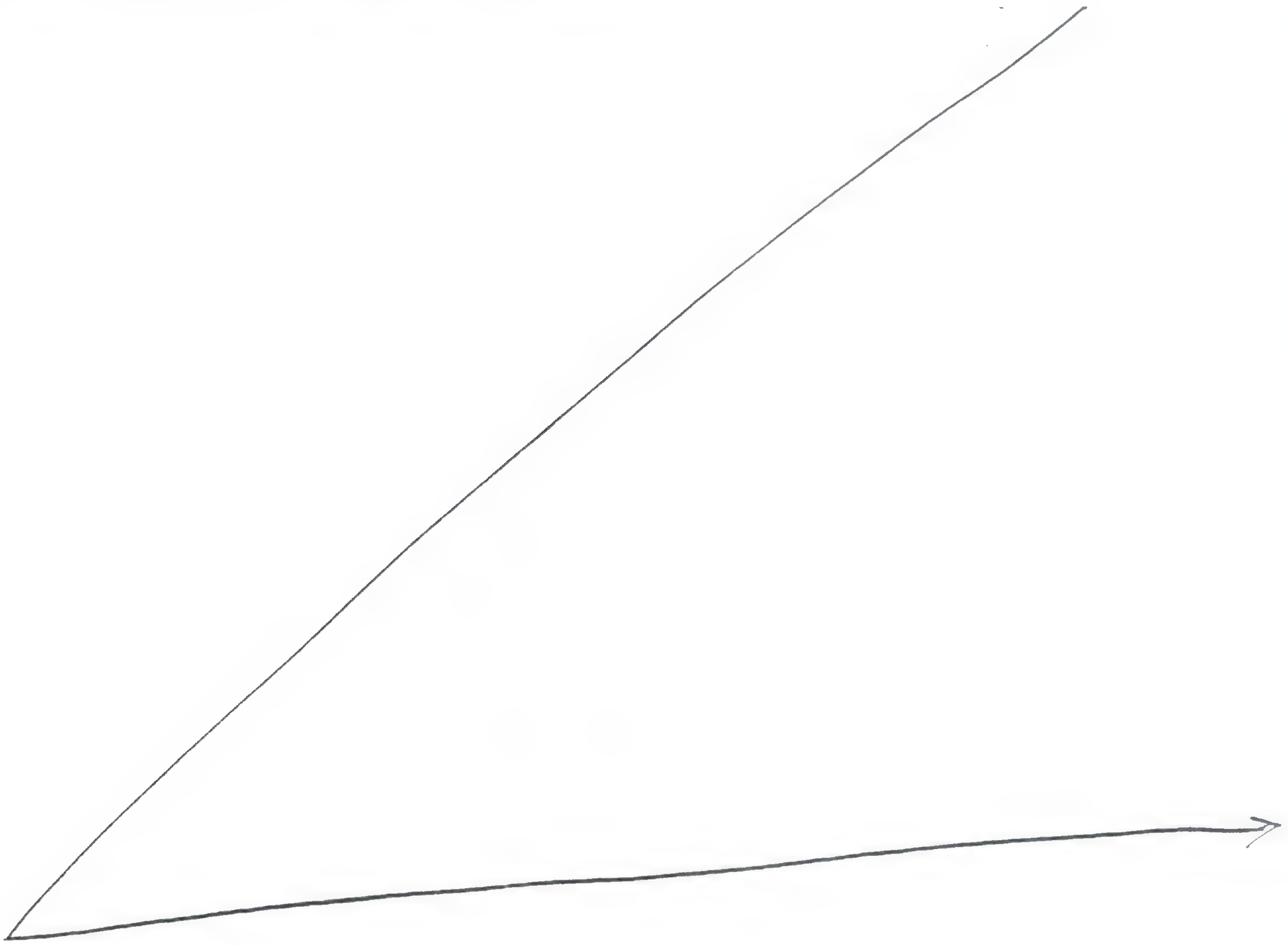
In dry soils on open prairie in the grassland. Julietta, Darlington; Post Falls, St. John 4327; Santa, Epling et al; Harvard, Epling.

8. M. dichotoma (Nutt.) Howell. A low annual 3-6 cm. tall, branching more or less dichotomously from the base, the basal leaves soon withering, the stem leaves alternate, linear, scarcely 1 mm. wide, 1-2 cm. long; racemes 1-4 cm. long, bractless, the flowers 1-sided; pedicels 2-5 mm. long; sepals 2.5-3 mm. long; the petals subequal or shorter, white, distinct; seeds black and shining, 1 mm. in diameter, lenticular.

Appearing as a diminished replica of M. linearis and growing with it abundantly, but apparently distinct. Santa, Epling et al.

9. M. parvifolia (Moq.) Greene. Stems tufted from a slender rootstock, ascending, 15-20 cm.tall, slender or filiform; leaves in a basal rosette, thickish and fleshy, blades 1-1.5 cm. long, oblanceolate to spatulate or subrotund, usually subacute at the apex, stem leaves alternate, reduced upwards, oblong or spatulate, acute, commonly bearing bulblets of two unequal leaflets in the upper axils; flowers few in a terminal raceme 1-2 cm. long; pedicels commonly 1 cm. long, bracteate only below; calyx 2.5 mm. long; corolla 6-8 mm. long, white or pink, the petals oblanceolate; capsule 1-2 seeded, shorter than the calyx, the seeds 1.2 mm. long, obovate, glistening but minutely pitted. (Claytonia parvifolia Moq.; Naiocrene parviflora Rydb.).

Occasional on mossy rocks along alpine streams or on moist ledges, 3000 to 6000 ft., throughout our range.



Polygonaceae. Buckwheat Family.

Herbs with alternate, entire leaves which in some genera are provided with scarious stipules (ocreae) which are tubular and sheath the stem for a short distance. Nodes swollen. Flowers perfect, the perianth a single petal-like whorl, 3-6 cleft, more or less persistent. Stamens 4-12. Ovary superior, 1-chambered, 1-seeded, bearing 2-3 styles. Fruit an achene, commonly 3-angled or winged.

o Stipules none; flowers borne within a more or less cup-shaped calyx-like 4 involucre; stamens 9; leaves woolly — 1. Eriogonum

o Stipules present; flowers without involucre; stamens 4-8; 4 leaves glabrous or at most pubescent, not woolly

2 Perianth segments 4 or 6, the inner whorl enclosing 6 the fruit, usually enlarging, the outer whorl very small

4 Perianth segments 4; stigmas 2; achene flat, 8 winged; leaves kidney-shaped — 2. Oxyria

4 Perianth segments 6; stigmas 3; achene 3-angled; 8 leaves mostly lanceolate — 3. Rumex

2 Perianth segments 5, equal and erect, persistent but not 6 enlarging in fruit — 1. Polygonum

1. Eriogonum Michx.

Annual or perennial herbs or shrubs with chiefly basal leaves without stipules. Flowers perfect, persistent and frequently reflexed in age, borne in glomerules which may be solitary and terminal, distributed along the branches or disposed in umbels, each subtended by a variously modified 4-8-lobed involucre, the lobes either nearly free and spreading or joined into a top shaped, sheathing cup. Perianth 6-parted, often highly colored, in some species narrowed at the base so as to resemble the pedicel to which it is joined. Stamens 9. Styles 3. Achene 3-angled.

calyx-like

o Inflorescence a solitary terminal glomerule; plants 5-10 cm. 4 tall — 1. E. ovalifolium

o Inflorescence of several glomerules in terminal umbels, 4 simple or compound; plants 15-50 cm. tall

2 Perianth silky-villous on outer surface; involucre 6 top shaped, toothed at the apex, not lobed

4 Perianth rose-color or white, the anthers purple — 2. E. pyrolaefolium

1 Perianth light yellow, the anthers flesh-colored 8 or yellow — 3. E. Piperi

2 Perianth glabrous throughout; involucre distinctly 6 lobed, the lobes 3-10 mm. long

4 Flowering stems bearing a secondary whorl of 8 leaves near the middle — 4. E. heracleoides

4 Flowering stems naked to the involucre

6 Leaves densely white tomentose on both sur- 10 faces — 5. E. proliferum

6 Leaves green on the upper surface — 6. E. subalpinum

1. E. ovalifolium Nutt. Low densely tufted plant branching at the base; flowering stems scape-like, 5-15 cm. tall, white woolly, 1 mm. in diameter; leaves densely crowded, the blades 5-15 mm. long, oval, acutish, abruptly attenuate below to a subequal petiole, covered with a dense, white, feltlike tomentum on both surfaces; flowers in a terminal solitary glomerule, the involucre lobed nearly to the base, the lobes narrowly oblong, woolly; perianth 3.5-4 mm. long, glabrous, not narrowed to a stipelike base, the pedicels shorter.

Rocky alpine ledges usually at 6000 ft. or more. Lake Pend Oreille; Stevens Peak, 6435 ft.; Snowy Top Mt.

2. E. pyrolaefolium Hook. Low tufted plants with a stout sometimes branching caudex [illegible] with old leaf-bases, the root elongated; leaves in a basal tuft, the blades 2-3 cm. long, oval or even subrotund, rounded or blunt at the apex, the upper surface green, glabrate, the lower [illegible] abruptly attenuate [illegible] to woolly petioles 2-4 cm. long, these dilated at the base; flowering stems usually several, 8-12 mm. long, more or less woolly, the clusters subtended by two linear-spatulate bracts 8-15 mm. long; umbels 1-3 on each stem, the involucres top-shaped, woolly, 6-8 mm. long, 5-toothed, the teeth triangular, 2-2.5 mm. long, acute; perianth white or rose-color, 5 mm. long, woolly on the outer surface; anthers purple; fruits not seen.

Hoodoo Lake, Shattuck and Fenn; Scurvy Mt., 6000 ft., Kirkwood 1946.

3. E. Piperi Greene. Plants 20-30 cm. tall ~~(or less in subalpine situations)~~, tufted but branching, the branches densely covered with old leaf-petioles, stems silky-villous, scape-like, without a whorl of leaves near the middle; leaves 3-8 cm. long (with the petiole), oblanceolate, obtuse, narrowed [illegible] to a silky petiole subequal to the blade, upper surface silky to glabrous but green, the lower [illegible] with a dense felt-like tomentum; glomerules in a simple umbel, subtended by a whorl of leaf-like bracts, peduncles and the involucre silky-villous; involucre tubular, top-shaped, 4-6.5 mm. long, scarcely lobed the lobes at most 1-1.5 mm. long; perianth bright sulphur yellow, 4-5 mm. long, silky-villous without, narrowed [illegible] to the pedicel which is twice as long. (E. flavum Nutt. subsp. Piperi (Greene) Stokes).

Subalpine slopes and ridges, mostly above 6000 feet.

E. compositum Dougl. var. leianthemum Benth. Leaves 2-8 cm. long, oblong-ovate, cordate; peduncles stout, naked; umbel compound, the perianth yellowish, glabrous or glabrate.—"On bare trap rocks, Upper Palouse River, between Spokane and Kooskooskie [Clearwater]" Geyer 410, 470.

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4. E. heracleoides Nutt. Plants 30-40 cm. tall, branching freely at the base, the bark purplish brown, flaking away, flowering stems tufted, more or less arachnoid-woolly, commonly with a whorl of 6-8 leaves near the middle; basal leaves clustered at the tips of branches, 3-5 cm. long (incl. the petiole) narrowly oblanceolate, obtuse or acute, attenuate at the base to a narrow petiole, upper surface more or less cobwebby or silky but green, lower surface covered with a dense feltlike tomentum; glomerules in simple or compound umbels, each umbel subtended by a whorl of leaf-like bracts; involucre lobed half way to the base, the lobes lanceolate, woolly; perianth glabrous, yellowish or whitish, rarely sulphur yellow, sometimes tinged with red, 2.5 mm. long, increasing to 6 mm., narrowed [illegible] to a slender stipe, passing into a subequal pedicel; achenes ovate-lanceolate, hirtellous on the angles.

Rocky ledges mostly below 4000 ft.; infrequent.

subsp. angustifolium (Nutt.) Stokes. Similar, the leaves 2-3 mm. wide, linear. —Pomeroy Ferry, Ripley 10428; West Kootenai, Lyall.

5. E. proliferum T. & G. Low plants with a much branched rather woody caudex; leaves white-woolly, on both surfaces, the blades broadly ovate, 1-1.5 cm. long, obtuse, rounded at the base and narrowed to a slender petiole 2-4 cm. long; flowering stems several, ascending, white-woolly, 10-20 cm. tall, forking twice or thrice toward the apex, a sessile umbel in each fork, the uppermost umbels on peduncles 1-1.5 cm. long; involucre white-woolly 5 mm. long, shortly toothed the teeth scarcely 1 mm. long; perianth white or whitish, glabrous, 4 mm. long, the outer lobes broadly obovate, the inner narrower; fruit not seen.

Near Bonner's Ferry on basalt ledge, Ewing.

Umbrella Plant.

6. E. subalpinum Greene. Plants 20-30 cm. tall, with slender woody stolons; flowering stems woolly, scape-like, naked; leaves 3-8 cm. long, including the petiole, spatulate, the blade proper commonly elliptical, narrowed abruptly to the petiole, obtuse at the apex, upper surface glabrate and bright green, the lower with a dense felt-like tomentum; glomerules in a simple umbel, subtended by a whorl of leaf-like spatulate or obovate bracts, peduncles and involucre woolly, involucre lobed nearly to the base, the segments spatulate or obovate, 3-6 mm. long, whitish, sometimes flushed with rose, 4-5 mm. long, glabrous, attenuate to the shorter pedicel.

Subalpine slopes and ridges usually above 5000 ft., rarely as low as 250[illegible] ft. on rock outcrops.

2. Oxyria Hill. Alpine Sorrel.

Perennial herbs with chiefly basal rather fleshy kidney-shaped long-petioled leaves. Flowers in a terminal panicle, borne well above the foliage, greenish, perfect. Perianth segments 4, the inner erect, enclosing the achene in fruit. Stamens 6. Achene rotund in outline, compressed, broadly winged.

1. O. digyna (L.) Hill. Rootstock .5-1 cm. thick, scaly toward th apex; stems 10-30 cm. tall, commonly with one or two cauline leaves; basal leaves several, 2-5 cm. broad, rotund-reniform, rather fleshy; panicle 8-10 cm. long, flowers 1.5-2 mm. long, greenish, not markedly enlarging in fruit, inner sepals obovate; achene (with the wing) round in outline, 4-5 mm. in diameter, notched at the apex and base, very flat, the wing scarious, rose-colored, 1-1.5 mm. wide.

Moist alpine ledges, chiefly above 6000 ft.; rare. Snowy Top Mt., 6000 ft.; Weissners Peak, 6800 ft.

3. Rumex L. Dock.

Ours perennial herbs with creeping or tuberous rootstocks; leaves chiefly basal, alternate, commonly lanceolate, glabrous, the margin frequently undulate or crisped; stipules sheathing; flowers in terminal panicles, green and small, perfect or dioecious; perianth of 6 segments, the outer smaller, narrow, the inner larger, generally ovate, increasing in fruit and enclosing the achene, reticulately veined, either with or without a prominent tubercle near the base, due to the thickening of the midvein. Stamens 6. Styles 3, tufted. Achenes ovoid, 3-angled, shining.

0 Leaves mostly basal, the petioles as long as the blades or 4 longer; flowers dioecious; plants 20-40 cm. tall

2 Leaves hastate, i.e. with two spreading lobes at the 6 base — 1. R. Acetosella

2 Leaves oblong-lanceolate, tapering at the base — 2. R. paucifolius

0 Leaves distributed along the stem but more or less 4 reduced upwards; petioles shorter than the blades; flowers perfect; plants 40-100 cm. tall or more

2 Inner perianth segments of mature fruit bearing a 6 conspicuous tubercle on the back

4 Perianth segments entire or eroded on the 8 margin, not toothed, all three bearing tubercles frequently

6 Stems erect; from elongate tap roots; 10 lower leaves obtuse to cordate at the base, 3-5 cm. wide or more, strongly undulate and crisped — 3. R. crispus

6 Stems several, decumbent at the base, 10 arising from a woody caudex with yellowish bark; all leaves attenuate at the base, 1-2.5 cm. wide, hardly undulate — 4. R. mexicanus

4 Perianth segments toothed, more or less bur- 8 like

6 All perianth segments bearing tubercles; 10 glomerules compact; leaves 1-2 cm. wide — 5. R. maritimus

6 One perianth segment in each flower with a 10 tubercle; glomerules loose; leaves 3-6 cm. wide or more — 6. R. obtusifolius

2 Inner perianth segments of mature fruit smooth, not 6 bearing tubercles — 7. R. occidentalis

1. R. Acetosella L. Sheep Sorrel. Stems 30-40 cm. tall; leaves chiefly basal, glabrous, the cauline reduced, blades 2-4 cm. long, hastate, the basal lobes obtuse or acute, the uppermost leaves entire, lanceolate; stipules very acute; petioles equal to the blades or longer, reduced above; panicle compound; staminate flowers yellow, the pistillate red, the inner perianth segments 1.5 mm. long, tubercle none, not reticulate; achenes scarcely 1 mm. long.

A common weed in fields and meadows and along trails and roadways, naturalized from Europe.

2. R. paucifolius Nutt. Rootstocks stout, 4-8 mm. in diameter or more; stems 30-40 cm. tall, simple to the inflorescence; leaves chiefly basal, glabrous, the cauline 2-3, reduced, blades 5-10 cm. long, oblong-lanceolate, obtuse or acute, tapering to a petiole subequal in length, the uppermost lanceolate, stipules 1-2 cm. long, soon lacerate; panicle compound, inner perianth segments brownish red at maturity, 3 mm. long, rounded-cordate, reticulate, the veins chiefly horizontal from the midvein; tubercle none; achenes ovoid, 1 mm. long, brown and shining. (R. Geyeri Trelease).

To be expected in the southern part of our range in meadows or on open hillsides.

3. R. crispus L. Curly Dock. Roots vertical 1.5-2 cm. in diameter; stems erect, commonly 1 m. tall, simple; basal leaves 15-30 cm. long, 6-8 cm. wide, oblong, obtuse, truncate or subcordate at the base, margin curly and wavy, petioles about half the length of the blade, the cauline drooping gracefully, stipules 1-3 cm. long; panicle 30-50 cm. long, spreading somewhat, leafy, greenish, becoming a deep sienna brown in fruit, inner segments of mature perianth broadly ovate, 4-5 mm. long, truncate but hardly cordate at base, each (or frequently only one) bearing a prominent tubercle, reticulately veined, pedicels subequal or longer; achene elliptical, 2-2.5 mm. long, brown, the angles very acute.

A common weed in fields and meadows and along roadways, mostly below 3000 feet; throughout our range. Considered an introduction from Europe.

4. R. mexicanus Meissn. Rootstocks woody, stems several, decumbent at the base, 40-60 cm. tall, leafy, branching from the base; leaves very smooth, all narrowly oblong-lanceolate, 8-15 cm. long, 1.5-3 cm. wide, acute or somewhat acuminate, tapering to petioles 1-2 cm. long, plane or lightly undulate, stipules 1-2 cm. long, panicle 10-20 cm. long, the branches ascending, the lowermost subtended by reduced leaves 5-8 cm. long; inner perianth segments ovate, 2 mm. long in flower, 5 mm. long, deltoid, in fruit obtuse or acutish, each commonly with a prominent tubercle usually narrower than the margin, reticulately veined, pedicels subequal or shorter; achenes 2 mm. long, ovoid, dark brown.

Muddy ground and waste places usually below 3000 feet; throughout our range..

5. R. maritimus L. var. fenginus (Phil.) Dusen. Rootstocks slender, 5-8 mm. in diameter; stems 20-40 cm. tall, branching especially from the base, erect or procumbent, smooth or scabrous, leafy throughout; leaves yellowish-green, commonly 8-12 cm. long, 1-2 cm. wide, narrowly oblong, obtuse, truncate at the base, smooth or scabrous, petioles 2-4 cm. long, undulate; stipules 5-8 mm. long; panicle leafy, composed of numerous interrupted spikes, the flowers in compact axillary glomerules; pedicels about twice the length of the perianth; inner perianth segments 2.5 mm. long, lacerate into several radiating bristle-like teeth 1-1.5 mm. long, making the fruit bur-like, each segment provided with a narrow tubercle; achene elliptical, 1-1.2 mm. long, brown, shining; fruit a rich reddish brown at maturity.

Occasional along sandy stream beds or lake shores below 3000 feet. Often the whole plant will have a golden hue in autumn.

6. R. obtusifolius L. Rather coarse perennial 60-100 cm. tall, the stem rather deeply grooved; basal leaves ovate, 15-25 cm. long, 6-10 cm. wide, cordate, the upper smaller, ovate-oblong, acute, rounded or slightly cordate at the base, ~~the margin~~ more or less undulate, petioles 4-6 cm. long, slender; panicle 40-50 cm. long or more, leafy, the branches ascending; flowers in rather loose, uncrowded whorls, drooping, the pedicels filiform, 5-8 mm. long; inner perianth segment 4 mm. long, hastate-deltoid, with 3-4 awl-shaped teeth on each margin, strongly reticulate, one segment bearing a prominent tubercle; achene 2 mm. long, ovate, brown and smooth.

Waste place near mine, Pritchard, Epling and Houck 10177; naturalized from Europe.

7. R. occidentalis Nels. Rootstock stout and short, 1.5-2.5 cm. in diameter; stems erect, commonly 1 m. tall, unbranched; principal leaves 20-40 cm. long, 8-12 cm. wide, oblong, apex obtuse, truncate or cordate at the base, plane or somewhat undulate; panicle 20-60 cm. long, secondary branches ascending, rose-colored in fruit; inner segments of mature perianth rounded-cordate, 7-8 mm. long, reticulately veined, tubercle none, pedicels subequal; achene ovoid, brown, 3 mm. long, the angles very acute.

In meadows and along roadways chiefly below 3000 ft.; throughout our range.

4. Polygonum L. Knotweed.

Annual or perennial ~~terrestrial or aquatic herbs, erect or prostrate~~, of varied habit. Leaves alternate, in general lanceolate, entire, petiolate or sessile, frequently jointed with the ocrea, commonly continuous with it. ~~Ocreae membranous, funnelform or cylindrical, truncate or oblique, entire or fringed with bristles, 2-cleft or lacerate~~ Flowers small, commonly pinkish or white, perfect, borne in ~~small~~ clusters, the clusters axillary or disposed in spikes, racemes or panicles, or crowded into terminal glomerules with modified overlapping bracts; perianth 5-parted; stamens commonly 5-8; styles 2 or 3 parted; achene lenticular or 3-angled, commonly enclosed in the persistent perianth.

o Stems twining; leaves cordate; growing near habitations — 1. P. Convolvulus

o Stems not twining; leaves lanceolate to linear, rounded 4 to attenuate at the base

2 Leaves 1-3 cm. long, commonly oblong-lanceolate to 6 linear; annuals, 2-40 cm. tall

4 8 Flowers crowded into glomerules 1 cm. or less long at the tips of branches, the bracts overlapping

6 10 Bracts oblong-elliptical with broad, white-scarious margins. (See also the next two species) — 2. P. polygaloides

6 10 Bracts lanceolate, tapering, margins not scarious or but slightly

8 12 Perianth white with green ribs; achenes shining and smooth — 3. P. unifolium

8 12 Perianth white, veined with pink; achenes dull, minutely rugose — 4. P. Watsoni

4 8 Flowers in axillary clusters of 1-several, distributed along the stem, or borne in loose racemes toward the ends of the stems, the bracts leaflike, gradually reduced upwards

6 10 Leaves not strongly reduced upwards; branches not angled

8 12 Leaves linear-oblong; plant more or less prostrate, often mat-like — 5. P. aviculare

8 Leaves oval or obovate; plant erect — 6. P. minimum

6 Leaves reduced upwards, scale-like
10 above; branches angled

8 Lower leaves commonly 1-2 mm. broad;
12 flowers campanulate — 7. P.spergulariaeforme

8 Lower leaves commonly 3-5 mm. broad
12 or more; flowers ovoid — 8. P. Douglasii

2 Leaves 5-20 cm. long, commonly lanceolate;
6 < mostly perennials growing in meadows or swampy, muddy places

4 Flowers in a loose open panicle 15-20 cm. long,
8 < achenes 5-6 mm. long, brown, highly polished — 9. P. alpinum

4 Flowers in spikes or narrow rather close
8 < racemes, these solitary or panicled; achenes 2-4 mm. long, black

6 Flowers in a dense solitary spike 1-5 cm.
10 long, .5-2 cm. wide

8 Spike terminating the stem; plant
12 erect — 10. P. bistortoides

8 Spike axillary, it and the peduncle
12 < shorter than the leaves; plants prostrate, creeping in mud or floating — 11. P. natans

6 Flowers in narrow, rather close racemes
10 < 3-5 cm. long, 5-8 mm. in diameter, solitary or panicled

8 Racemes commonly 2, less often 1;
12 < leaves 10-20 cm. long, 4-5 cm. broad, rounded, even cordate, at base — 12. P. coccineum

8 Racemes commonly several or numerous;
12 < leaves 5-10 cm. long, attenuate at base

10 Sheaths without bristles; bracts
14 < of inflorescence ovate, subacute; perianth not glandular dotted — 13. P. lapathifolium

10 Sheaths with bristles; bracts of
14 < inflorescence truncate; perianth glandular dotted or smooth

12 Perianth glandular dotted: achene
16 dull, minutely striate — 14. P. Hydropiper
Perianth not glandular dotted;
16 achene shining — 15. P. Persicaria

1. P. Convolvulus L. Bindweed. Stems prostrate, branching, climbing and twining; leaves 4-8 cm. long, broadly ovate and deeply cordate below, narrowly lanceolate and subhastate above, pale green, glabrous; ocreae cylindrical above, funneliform below, 3-4 mm. long; axillary racemes 8-10 cm. long, lower bracts leaflike, much reduced, each subtending a cluster of 2-3 drooping flowers; perianth whitish or green, 3-4 mm. long, 5-cleft, the lobes oblong, tightly enclosing the fruit; achene 3 mm. long, ovoid, 3-angled, black and shining.

In waste places; introduced from Europe. Much resembles the genus Convolvulus in habit.

2. P. polygaloides Meissner. Annual, 5-20 cm. tall, divaricately branched, glabrous or minutely puberulent; leaves commonly 1.5-2.5 cm. long, linear, 1.5-2 mm. wide, sessile; ocreae funnelform, 4-5 mm. long, 2-cleft, the lobes very acute, becoming lacerate; flowers in small axillary clusters, crowded in ovoid glomerules at the tips of the branches, the subtending bracts imbricated, oval, 5-10 mm. long, 2-3 mm. wide, green in the middle, with broad, white-scarious margins; perianth 2 mm. long, white with a pink vein, 5-cleft, the two outer lobes longer than the inner; stamens 5-8 with purple anthers, included; styles 3-cleft, minute; achene hardly more than the 1 mm. long, 3-angled, lanceolate in outline.

Occasional in broad valleys below 3000 feet.

3. P. unifolium Small. Annual, stems 1-10 cm. tall, branching, the branches ascending, glabrous, leaves 1-1.5 cm. long, 1-2 mm. wide, linear-lanceolate, acute, sessile; ocreae 3-4 mm. long, scarious, silvery, 2-cleft, acute; flowers in small axillary clusters, crowded into leafy oblong or ovate spikes at the tips of the branches, the bracts lanceolate, imbricated, green and leaflike; perianth 2 mm. long, pinkish or white with green midveins, 5-cleft, the lobes narrowly ovate, obtuse, equal; stamens 5, included, style minute, 3-cleft, the achenes hardly 2 mm. long, 3-angled, shining, smooth, rather blunt on the angles.

In dry soil in subalpine meadow, Fish Lake, 6000 ft., Epling and Houck 9603; Vanderbilt Gulch, Epling and Kempf.

4. P. Watsoni Small. Annual, the stems 3-10 cm. tall, simple, or sparingly branched, glabrous; leaves 1-2 cm. long, linear, sessile, acute; ocreae 4-5 mm. long, funnelform, silvery, 2-cleft, becoming lacerate; flowers in small axillary clusters, crowded into leafy, oblong spikes at the ends of the branches, the bracts narrowly lanceolate, tapering, imbricated, green and leaflike; sometimes with very narrow scarious margins; perianth 2 mm. long, white, veined with pink, 5-cleft, the lobes ovate-lanceolate, acute, equal; stamens 5, included, the anthers red, style minute, 3-cleft; achene hardly more than 2 mm. long, ovoid or lanceolate in outline, 3-angled, minutely longitudinally rugose, dull.

Dry soil, valley of Little Potlatch R., Sandberg 403; Emerald Creek, Epling and Offord.

5. P. aviculare L. Knotweed. Annual or perennial, stems more or less prostrate, (wiry,) branching freely, [illegible] the nodes conspicuous, leaves commonly 1-2 cm. long, oblong, [illegible] lanceolate or oblanceolate, acute or obtuse, narrowed at the base, glabrous, [illegible] bluish green, [illegible] petioles 1-2 mm. long; ocreae 2-4 mm. long, silvery-white, and conspicuous when fresh, 2-parted, becoming fringed in age; flowers whitish, in axillary clusters of 3-5, perianth [illegible] segments oblong, obtuse; stamens varying from 5-8, included, the style minute, 3-cleft; achene 2-2.5 mm. long, ovoid, 3-angled, brown.

A common weed along roadways and in waste places. Introduced from Europe. Leaves often hoary due to the mycelium of a [illegible] fungus.

6. P. minimum Wats. Low annual 10-15 cm. tall, branching from the base, the stems ascending, or frequently unbranched; leaves commonly 1-1.5 cm. long, ovate, oval or obovate, obtuse but slightly mucronate, narrowed [illegible] to a petiole 1-2 mm. long, glabrous on both surfaces, but little reduced in the upper axils; ocreae funnelform, 2-3 mm. long, oblique, more or less lacerate; flowers in small axillary clusters, [illegible] perianth greenish with white margins or somewhat rosy, 1.5-2 mm. long, 5-cleft to near the base, the segments obtuse; stamens varying from 5-8, included; style minute, 3-cleft; achene 2 mm. long, 3-angled, elliptical, black and shining.

Dry gravelly soil in burns or outcrops; throughout our region but very local.

7. P. spergulariaeforme Meissner. Annual, commonly much branched from the base, or nearly simple, [illegible], 10-25 cm. tall, minutely puberulent and rather scurfy, leaves commonly 1-2 cm. long, linear-oblong or linear-lanceolate, 1-2 mm. wide, acute, sessile; ocreae closely sheathing, 6-8 mm. long, 2-cleft, the lobes very acute; flowers in small axillary clusters in the axils of the scale like upper leaves, perianth 4-5 mm. long, white, campanulate, 5-cleft nearly to the base, the segments oblong, with a prominent pinkish vein which is thickened at the base; stamens 5-8, included; style 3-parted, minute; achene elliptical, 3-4 mm. long, 3-angled, black and shining. (P. coarctatum Dougl., P. majus Piper).

Dry gravelly soil in burns and outcrops.

8. P. Douglasii Greene. Annual, erect, branching from the base, 30-40 cm. tall, the stems slender; leaves 2-5 cm. long, glabrous, commonly narrowly oblong-lanceolate, 5-6 mm. broad, [illegible] acute, [illegible] acute or acuminate at the base and nearly sessile, the upper greatly reduced; ocreae cylindrical, rather closely sheathing, about 1 cm. long, 2-cleft above, the lobes very slender and sharp, often becoming lacerate; flowers in small clusters in the axils of the much reduced scale-like upper leaves, frequently solitary; perianth 5-parted nearly to the base, the segments 3-5 mm. long, greenish toward the base, oblong, blunt, with more or less scarious margins, the outer pinnately veined, the midvein thickened, on pedicels 1-2 mm. long, soon strongly reflexed; stamens ~~eight~~, (8) included, the style minute, 3-parted; achene 3-4 mm. long, 3-angled, elliptical, black and shining. (P. [illegible] P. Douglasii var. latifolium Greene).

Dry gravelly soil throughout our region, ranging from 2500 feet or less to 6000 feet or more. Variable in size and foliage, the var. latifolium being merely a broad-leaved form of moister ground.

9. P. alpinum Allioni. Rootstocks elongated; stems 80-120 cm. tall or more, stout, glaucous, hollow, glabrous, commonly branching; leaves 10-20 cm. long, ~~diminished above~~ lanceolate, acute or lightly acuminate, narrowed at the base, glabrous, bright green, petioles 1-2 cm. long; ocreae .5-2 cm. long, obliquely funnelform, 2-lobed, brittle and soon falling away; flowers numerous in a terminal panicle 15-20 cm. long, ~~pedicel 2-3 mm. long, slender~~ perianth whitish 2.5-3 mm. long, 5-cleft to near the base, the segments oblong-obovate, very obtuse; stamens 6-8, shorter than the segments; style 3-parted nearly to the base, less than 1 mm. long; achene oval, 5-6 mm. long, strongly 3-angled, a rich brown, highly polished.

Moist alpine slopes and meadows, above 5000 feet; not seen in the Kootenai or Priest River drainages; frequently forms communities of some extent, being an early entrant on talus slopes, where it is often associated with Xerophyllum tenax.

10. P. bistortoides Pursh. Rootstocks stout, contorted, branching, 1-2.5 cm. in diameter, ~~flesh-colored within~~, stems 40-120 cm. tall, glabrous; basal leaves oblong-lanceolate, acute, the blades 15-25 cm. long, 5-8 cm. broad, ~~[illegible]~~ rounded at the base or even subhastate, ~~the margin lightly undulate~~, borne on stout petioles 8-30 cm. long, upper surface glabrous, the lower hirtellous or glabrous, paler, cauline leaves sessile and clasping, very acute, the ocreae sheathing the stem for 5-6 centimeters, the summit entire; flowers paper white, rarely somewhat tinged with pink, in a dense cylindrical spike 2-5 cm. long, about 1.5 cm. wide, bracts lanceolate, 4-6 mm. long, acuminate; calyx 3-3.5 mm. long, 5-cleft nearly to the base, the segments broadly ovate or ovate-elliptical, obtuse; stamens 8, somewhat longer than the segments, the anthers white or grey; styles parted nearly to the base; achene 4 mm. long, smooth and shining.

In meadows and moist ground at lower elevations; odorous en masse but hardly fragrant; abundant locally. Quamash Flats (Weippe prairies) M. Lewis (type); Nez Perces; Moscow; Princeton, Emerald Cr.; Boville; Harvard.

var. linearifolium (S. Wats.) Small. Similar but smaller, 15-40 cm. tall, the leaves linear-lanceolate, 10-15 cm. long, 1-2 cm. broad; spikes 1-2 cm. long. —Common in subalpine meadows.

11. P. natans (Michx.) A. Eaton. Stem prostrate, commonly 30-120 cm. long, branching, rooting at the nodes; leaves oblong or narrowly elliptical, 8-15 cm. long, obtuse or subacute at both ends, both surfaces glabrous in floating forms, hairy in terrestrial forms or in terrestrial portions of partly submerged plants, petioles variable, commonly .5-1.5 cm. long; ocreae cylindrical, .5-1.5 long, obliquely truncate; flowers rose-colored in a dense terminal spike commonly 2 cm. long, 1-1.5 cm. in diameter; bracts ovate, 3 mm. long, glabrous, not ciliate, perianth 4 mm. long, 5-cleft to below the midale, segments oblong, obtuse; stamens 5, subequal to the segments, the style 2-cleft, exserted; achene lenticular, 2.5 mm. long.

Rooting in mud or floating on still water. Lake Coeur d'Alene; Weippe; Coolin; Upper Priest Lake; Priest Lake; East River; Granite Sta.

12. P. coccineum Muhl. Stems more or less prostrate, 30-60 cm. long, rooting at the nodes, unbranched, the upper part erect; leaves lanceolate, or ovate-lanceolate, 15-20 cm. long, acuminate, rounded at the base, occasionally truncate or subcordate, glabrous or with an appressed rather silky pubescence; petioles 2-4 cm. long; ocreae cylindrical, 2-3 cm. long, closely clasping and molded to the swollen joint, truncate; terminal, narrow, linear raceme, solitary or with a secondary smaller raceme from the same bract, 3-8 cm. long, 5-6 mm. broad; bracts oval or ovate 3-4 mm. long, strongly ciliate, flowers rose-colored, 4 mm. long, 5-cleft to slightly below the middle, lanceolate, obtuse; stamens 5; style 2-cleft, both slightly exserted; achene 3 mm. long, subrotund in outline. (P. Muhlenbergii Wats.).

Swampy ground of lake embayments below 3000 ft.; plants which are more or less immersed are glabrate, the lower leaves being mostly cordate or truncate at the base, while terrestrial forms are hirsute with leaves which are rounded, but narrowed at the base, or the lower leaves may be glabrous and truncate and the upper narrowed and hirsute.

13. P. lapathifolium L. Water Smartweed. Annual, stems erect, 30-60 cm. tall, branching above; leaves 5-15 cm. long, narrowly lanceolate, very acute or lightly acuminate, narrowed at the base, glabrous or lightly pubescent, more or less glandular punctate; ocreae cylindrical, 1-2 cm. long, rather loosely clasping, several-veined, truncate, frequently ciliolate but without a fringe of bristles; panicle composed of several slender racemes 2-6 cm. long, 5-6 mm. wide; bracts ovate, 2-3 mm. long, mostly acute, neither punctate nor bristly; flowers whitish, tinged with rose, 2-2.5 mm. long, the segments 5, ovate; stamens 6, style 2- or 3-cleft, both included; achene lenticular, broadly ovoid, 2 mm. broad or less, black and shining.

Muddy ground in open places below 3000 ft. Apparently introduced from Europe. St. Maries; Priest R. Exp. Sta., 2700 ft.

var. incanum Koch. Similar, but dwarfed, the leaves whitish beneath.—Sandpoint, Christ 671; Pack R., Christ 539.

14. P. Hydropiper L. Smartweed. Annual, stems ascending or prostrate at the base, 30-60 cm. tall, slender, mostly simple; leaves narrowly lanceolate, 3-6 cm. long, acute or lightly acuminate, attenuate [redacted] to a petiole 2-5 mm. long, glabrate, glandular-punctate, the margins ciliate; ocreae cylindrical, .5-1.5 cm. long, rather closely sheathing, truncate and fringed with bristles; tr. ~~flowers in~~ usually solitary, slender racemes 3-6 cm. long, 4-5 mm. wide, more or less interrupted; bracts 2 mm. long, cup-shaped, truncate, glandular with a few bristles less than 1 mm. long or none; perianth green, tinged with pink, glandular-punctate, on pedicels 1-2 mm. long, cleft to below the middle, the segments oval, obtuse; stamens 6, included, the style 2-3 parted, 1-2 mm. long; achenes 2.5 mm. long, lenticular or 3-angled, dull and minutely striate.

Muddy waste places below 3000 feet. St. Maries; Port Hill.

15. P. Persicaria L. Stems erect or prostrate at the base, 30-50 cm. long, commonly branched throughout; leaves lanceolate or elliptical-lanceolate, [redacted] 5-6 cm. long, acuminate, narrowed [redacted] to a petiole 2-5 mm. long, glabrous or lightly pubescent; ocreae cylindrical, .5-1 cm. long, rather closely sheathing, many veined, truncate and fringed with bristles; [redacted] ~~in terminal~~ panicles, composed of 1-3 rather loose racemes 1-3 cm. long, 8-10 mm. wide; bracts cup shaped, truncate, with a fringe of bristles, not glandular, 2 mm. long; flowers pinkish or sometimes greenish white, on pedicels 1-2 mm. long, 5-cleft to the middle, the segments oblong, very obtuse; stamens 6, included; ~~the~~ style 2-3 cleft, 1-2 mm. long; achenes 2 mm. long, black and shining, ovoid, lenticular or occasionally 3-angled, the angles very blunt.

Muddy waste places mostly below 3000 feet.

Chenopodiaceae. Goosefoot Family.

Annual and perennial weedy herbs; stems commonly angled, grooved or striate, branching; leaves alternate or opposite, without stipules. Flowers perfect, polygamous, monoecious or dioecious, greenish. Perianth persistent, 2-5 lobed, sometimes wanting (a single sepal in Corispermum); stamens equaling the the perianth segments and opposite them or fewer. Ovary superior, 1-chambered, 1-ovuled; styles 2-5. Fruit a usually small utricle.

Leaves linear or awl-shaped, entire.

Leaves and flowers villous, the flower heads suggesting small pellets of wool, close set along the branchlets. 1. Bassia

Leaves and flowers glabrous, the leaf-blades tipped with a spine.

Flowers in narrow close-set spikes 2-4 cm. long at the ends of the branches; each flower subtended by a single bract; fruit convex-margined but not winged. 2. Corispermum

Flowers distributed along the branches often for several centimeters; each flower subtended by a bract and two somewhat smaller bractlets; fruit with conspicuous wings. 3. Salsola

Leaves triangular, hastate or ovate, usually conspicuously fleshy, more or less sinuately lobed or toothed.

Calyx 5-parted; stamens usually 5. 4. Chenopodium

Calyx a single sepal; stamen 1. 5. Monolepis

1. Bassia All.

Annual bushy herbs branching from the base, with small gray-villous unarmed leaves. Flowers perfect, crowded in the axils, invested in loose wool. Perianth lobes produced into hooked horny appendages in fruit. Stamens 5. Styles 2. Utricle flattened, submembranous, enclosed by the spinescent perianth lobes.

1. B. hyssopifolia (Pall.) Kuntze. A bushy much branched soft pubescent annual 1 m. high or more, the branches divaricate or ascending, striate, glabrous or nearly so, at least below; leaves oblong-linear, small, 4-10 mm. long, loose-villous, more or less fasciculate; flowers in small woolly clusters in the axils of the leaves, crowded along the shorter lateral branchlets; calyx appendages exserted beyond the wool, brown, hooked.

A recently introduced weed, native of Asia Minor, spreading along roadsides. Often associated with fall tumbleweeds. Reported long ago from Nevada (Tidestrom), more recently from California (Bauer in Bull. S. Calif. Acad. Sci. 29:98. 1930) and Washington (Constance in Madrono 3:171. 1935). →

no 4 → Hayden Lake, 20 IX 1930, Christ 920.

2. Corispermum L.

Branching bushy herbs. Leaves narrowly linear, alternate, 1-veined. Flowers perfect, solitary in the upper axils, bractlets wanting. Perianth a single membranous sepal. Stamens 1-3, unequal. Styles 2. Utricle oval, flattened, convex.

1. C. hyssopifolium L. Bugseed. Annual 30-50 cm. tall, the stems striate; leaves linear, 4-5 cm. long, 1-3 mm. broad, usually tipped with a short cusp; flowers crowded into slender spikes 2-4 cm. long at the tips of the branches, bracts 3-4 mm. long, ovate-lanceolate, acuminate, with a thin subscarious margin especially toward the base, tipped with a short cusp; utricle 3 mm. long. narrowly margined.

European weed of sandy soils.

Near Horse Plains, 2133 ft., Leiberg 1602.

9. Salsola L. Russian Thistle.

Annual bushy herbs, much branched, with rigid, subulate, spinescent leaves. Flowers perfect, solitary in the axils, each subtended by 2 spinescent bractlets. Perianth 5-parted. Stamens 5. Styles 2. Utricle flattened, enclosed by the persistent perianth which in fruit is horizontally winged.

1. S. Kali L. var. tenuifolia G.F.W. Meyer. Russian Thistle. ~~A globose,~~ bushy annuals 30-90 cm. tall, the branches glabrous or pubescent, leaves exceedingly variable, subulate and 1 cm. long, to narrowly linear and 2-5 cm. long, the latter common in the variety, all spinescent at the tip; bracts subulate with a scarious margin at the base, recurving, spiny, the bractlets similar but narrower; flowers solitary, the perianth enclosing the fruit at maturity, forming a sort of beak over it, the wings 3 mm. long, fan-shaped, forming a cup-like crown.

A frequent weed in waste places and along railroad tracks; introduced from Asia. One of the fall "tumble weeds".

4. Chenopodium L. Goosefoot.

Annual or perennial herbs with rather fleshy alternate leaves which are commonly green and glabrous or frequently white mealy or glandular pubescent. Flowers very small, green, sessile, perfect, borne in small clusters, the clusters axillary, often panicled. Perianth 2-5 parted. Stamens 1-5. Utricle enclosed by the persistent often herbaceous or fleshy perianth. Mostly introduced weeds. C. capitatum rather showy.

1 Plants glandular-viscid throughout; leaves pinnately
4 lobed — 1. C. botrys

1 Plants glabrous or mealy, not glandular; leaves
4 entire or toothed but not lobed

2 Plants mealy, i.e., covered with a whitish meal-
6 like scurf which rubs off readily. — 2. C. album

2 Plants glabrous throughout; leaves lightly
6 cordate or subhastate at base

4 Flowers in dense globose, axillary glomerules,
8 becoming red and juicy in fruit — 3. C. capitatum

4 Flowers in clusters disposed in an open panicle,
8 green in fruit, the segments with a scarious
margin — 4. C. hybridum

1. C. botrys L. Jerusalem Oak. Plants 20-30 cm. tall, pale yellowish-green, commonly branching from the base, glandular pubescent throughout; leaves 1-4 cm. long, oblong, obtuse, truncate at base, the margin irregularly sinuately lobed, suggesting an oak leaf in some, the petiole subequal to the blade, reduced in the upper axils: flowers numerous in axillary cymules; perianth 1 mm. long, the segments ovate, somewhat shorter than the fruit.

An occasional weed in waste places; naturalized from Europe.

2. C. album L. Lambs Quarters. Plants 30-60 cm. tall or more, branching above, white-mealy throughout; leaves rather fleshy, 3-4 cm. long, ovate in outline, obtuse, cuneate at base, the margin sinuately and irregularly toothed or subentire, 3 veins prominent from the base; petioles 1-2 cm. long; flowers in dense clusters, 2-3 mm. in diameter, the clusters panicled, panicles 15-30 cm. long, mealy; mature perianth 1 mm. long, enclosing the dull black vertically compressed utricle.

A common weed in waste places about dwellings; occasionally along trails; naturalized from Europe.

C. leptophyllum Nutt. A weed collected at Dubois and Spencer by Rust. — Easily distinguished from C. album by the usually entire narrow leaves: may enter our

3. C. capitatum (L.) Asch. Strawberry Blite. Plant 30-40 cm. tall or more, glabrous throughout, branching from the base, the stems simple, often reddish; leaves 3-5 cm. long, triangular in outline, subhastate at the base, acute, sinuately toothed along the margin, the teeth several, 2-4 mm. long, acute, petioles as long as the blade in the lower leaves, reduced above; flowers in dense axillary glomerules, crowded at the apex of the branch, the perianth fleshy and bright red in fruit, the clusters suggesting small strawberries; utricle less than 1 mm. long, subglobose, black, flattened laterally. (Blitum capitatum L.).

An infrequent weed in waste places; naturalized from Eurasia. ——→

no 4 ——→ Near Pritchard, Epling and Houck 10174.

4. C. hybridum L. Green Goosefoot. Erect, little branched annual 80-100 cm. tall, glabrous throughout, or the inflorescence somewhat mealy; leaves commonly 8-12 cm. long, ovate in outline, acute at the apex, narrowly and lightly cordate at the base, the margin deeply sinuate, the teeth commonly 3 on each side, acutely triangular, curving forward, 5-10 mm. tall, both surfaces green and glabrous, petiole half the length of the blade; flowers in small rather loose clusters, the clusters in a terminal open panicle 30-40 cm. long, the lower branches subtended by leaves, perianth segments 1 mm. long, ovate, scarious margined; the utricle vertically flattened.

An infrequent weed of waste places; naturalized from Europe. ——→

no 4 ——→ Priest R. Valley, Epling 5785.

5. Monolepis Schrad.

Low branching annuals with alternate fleshy leaves. Flowers polygamous or perfect, crowded in the axils of the upper leaves. Perianth of a single bract-like sepal, persistent. Stamen 1, at the base of the sepal. Styles 2, filiform. Utricle laterally flattened.

1. M. nuttalliana (Schultes) Engelm. Erect, 10-20 cm. tall, branching at the base, glabrate; leaves .5-1.5 cm. long, subhastate, with a spreading tooth on each side, narrowed below; flowers 6-8 in each cluster, the sepal green and leaflike, 2-3 mm. long, linear-oblong, the stamen 1 mm. long; fruit lenticular, 1 mm. in diameter, the pitted pericarp adherent to the seed.

of subsaline soils

An infrequent weed, hardly proper to our region. →

not → Thatuna Hills, Epling and Houck 9077.

Amaranthaceae. Amaranth Family.

Herbs with alternate or opposite leaves. Flowers small, greenish, perfect, polygamous, monoecious or dioecious, bracteolate, disposed in axillary clusters or spikes. Perianth 3-5 parted, persistent, becoming more or less chaffy, the segments sometimes unequal in size. Stamens 5 or fewer, usually opposite the perianth segments. Ovary superior, 1-chambered, stigmas 2-3. Fruit a utricle.

Amaranthus L.

Annual herbs with alternate leaves. Flowers ~~small, green or purplish~~ usually subtended by 3 bractlets, disposed in axillary clusters or terminal spikes, the spikes panicled. Perianth segments 2-5, distinct, monoecious or polygamous, commonly with staminate and pistillate flowers in the same cluster. Stamens 2-5. ~~Fruit~~ utricle tipped by the persistent styles.

o Flowers in small clusters in the axils of leaves

2 Sepals 3; plant erect, the branches ascending — 1. A. graecizans

2 Sepals 4 or 5; plant spreading, the branches prostrate on the ground — 2. A. blitoides

o Flowers in terminal spikes, the spikes commonly panicled — 9. A. retroflexus

1. A. graecizans L. Tumble Weed. A bushy plant 30-60 cm. tall, branching throughout, the branches ascending; leaves 1-3 cm. long, pale green, glabrous, obovate, oblanceolate or spatulate, rounded at the apex, narrowed at the base to a slender petiole 1-3 cm. long, margin entire, lightly crisped; flowers in small axillary clusters; bracts subulate, spinose, rigid, exceeding the flowers; perianth segments 3, membranous, 1.5 mm. long, scarcely .5 mm. wide; utricle rugose; seed shining black, 1 mm. in diameter, lenticular.

A field weed which, after drying in late summer is rolled by winds across country.

2. A. blitoides Wats. Low and prostrate ~~weed~~, the branches spreading over the ground, 15-30 cm. long or more; leaves 1-2 cm. long, obovate, glabrous, narrowed below to a petiole 2-5 mm. long, margins entire; flowers in small axillary clusters, the bracts subequal to the flowers, not spinose, but acute or acuminate; perianth segments 4 or 5, unequal, usually .5-1 mm. wide and 1.5-2 mm. long, ovate; utricle smooth, seed shining black, 1 mm. in diameter, lenticular.

A weed of fields and waste places.

3. A. retroflexus L. Pigweed. A weed commonly 1 m. tall or more, erect, simple or branched, lightly pubescent throughout or villous in the inflorescence; leaves ovate or rhombic-ovate, commonly 5-8 cm. long, acute or obtuse, cuneate at base, ~~paler beneath, the margin entire or finely eroded~~, petioles 3-5 cm. long; slender spikes, 3-5 cm. long, 1 cm. in diameter, green; bracts subulate, spinose, 4-6 mm. long; flowers monoecious, stamens 5, sepals 5; utricle rugose in the upper half, shorter than the sepals.

A frequent weed in waste places; naturalized from Europe. →

no H → A coll. from Coeur d'Alene, Leiberg 1550, was referred by Standley to A. Powellii Wats., a species differing chiefly in having 3 stamens instead of 5, the utricle being equal to the sepals.

Lythraceae. Loosestrife Family.

Herbs with usually opposite leaves without stipules. Flowers perfect, solitary or clustered in the axils. Sepals 4 or 5, the calyx-tube enclosing the ovary but free from it. Petals 4 or 5, seated on the calyx-tube. Stamens several, seated on the calyx-tube. Style 1; ovary 2-6-chambered. Fruit a capsule.

Rotala L.

Annual or glabrous herbs of moist or muddy places, the stems 4-angled, ~~the leaves opposite~~ Flowers small, inconspicuous, ~~mostly solitary in the axils of the leaves~~ Sepals 4, persistent, the calyx-tube campanulate, closely investing the capsule, ~~at maturity~~ Petals 4, small. Stamens 4, ~~seated on the calyx-tube~~ Capsule 4-chambered, 4-valved.

1. R. ramosior (L.) Koehne. A glabrous rather fleshy plant with simple or unbranched stems, rooting at the lower nodes, the internodes 1-3 cm. long; leaves oblong-elliptical, narrowed and obtuse at both ends, entire; flowers ~~mostly solitary in the axils~~ sessile, 2-3 mm. long, the petals white, orbicular, scarcely 1 mm. long; capsule subglobose 3 mm. long.

In muddy places along streams or lake shores. Fernan Cr., Rust 408.

Our plant is apparently the typical form as defined by Fernald (Rhodora 37: 169).

Onagraceae. Evening Primrose Family.

Herbs or rarely shrubs with alternate or opposite simple leaves, without stipules. Flowers perfect, symetrical, axillary or in racemes, mostly 4-parted, commonly sessile, the inferior elongate ovary appearing as a pedicel. Sepals 2-6, usually 4, the tube of the calyx commonly prolonged above the inferior ovary. Petals usually 4, convolute in the bud, sometimes wanting. Stamens as many or twice as many as the sepals. Pistil of usually 4 carpels, 2 or 4 chambered. Seeds often with a tuft of hairs (coma).

0 Sepals and petals 2; fruit 2 mm. long,
4 obovate, indehiscent, covered with hooked bristles — 1. Circaea

0 Sepals and petals 4; fruit .5-8 cm. long, linear
4 or narrowly oblong, not covered with hooked bristles

2 Petals yellow; pods 4-5 mm. in diameter — 2. Oenothera

2 Petals rose-purple or pink, rarely bluish or white

4 Seeds with a tuft of silky hairs at one end;
8 pods 1.5-8 cm. long

6 Calyx tube prolonged above the ovary 1 mm.
10 or more; petals 2-6 mm. long — 3. Epilobium

6 Calyx tube not prolonged above the ovary;
10 petals 1-2 cm. long — 4. Chamaenerion

4 Seeds without a tuft of silky hairs at the end;
8 ~~pods~~ Capsules .5-2 cm. long

6 Petals 1.5-6 mm. long; pods .5-1 cm. long

8 Calyx tube prolonged above the ovary; petals
12 < 2.5-6 mm. long, leaves several millimeters broad — 5. Boisduvallia

8 Calyx tube not prolonged above the ovary;
petals 1.5-2.5 mm. long; leaves linear,
14 1-2, rarely 3 mm. broad — 6. Gayophytum

6 Petals 1-2 cm. long; pods 1.5-2 cm. long — 7. Clarkia

1 Circaea L. Enchanter's Nightshade.

Delicate perennial herbs with opposite ovate membranous leaves and slender stems arising from small tubers. Flowers small, white, in short racemes. Sepals 2, the calyx-tube slightly prolonged above the ovary. Petals 2, notched at the apex. Stamens 2. Fruit 1 or 2-chambered, 1 or 2 seeded, obovate, covered with hooked bristles.

0 Plants 15-40 cm. tall; sepals 1.5 mm. long,

4 shorter than the mature stamens — 1. C. pacifica

0 Plants 5-20 cm. tall; sepals 1.2 mm. long, subequal

4 to or longer than the stamens — 2. C. alpina

1. C. pacifica Asch. & Magn. Stems 15-40 cm., commonly 25-30 cm. tall; leaves opposite, the blades thin, broadly ovate, on the lowermost orbicular, acuminate, rounded or lightly cordate at the base, 2.5-6 cm. long, glabrous above, very thinly hirtellous beneath, the margins ciliolate, obscurely denticulate, the petioles 2-2.5 cm. long; flowers white, on pedicels 2-3 mm. long in flower and ascending in a terminal panicle 5-10 cm. long, the branches subtended by slender awl-shaped bracts 2-5 mm. long; sepals ovate, 2.5 mm. long; petals broadly spatulate, 2-lobed, erect, 2 mm. long, exceeded by the stamens and style; fruit 2 mm. long, obovate, glandular hairy, the hairs hooked, the pedicels spreading or reflexed, 5-7 mm. long.

Common throughout our region in moist woods.

2. C. alpina L. Stems slender, 5-20 cm. tall, glabrate, arising from small tubers 5-8 mm. long, leaves sparingly hirtellous, the blades 1-3 cm. long, ovate, obtuse or shortly acuminate, rounded or subcordate at the base, sharply denticulate, borne on petioles .5-1 cm. long; flowers few, borne on pedicels .5 mm. long, elongating to 2 mm. in fruit; in lightly glandular racemes 1-2 cm. long; sepals 2 mm. long, subequal to the stamens; petals 1.2-1.5 mm. long, deeply

notched, nearly obcordate.

In dense colonies in moist shady places: Thatuna Hills, Epling and Houck 9009; Benton Cr., Ellison 31.

2. Oenothera L. Evening Primrose.

Annual, biennial or perennial herbs with alternate leaves. Flowers showy, in racemes or axillary in leafy spikes. Sepals 4, the tips often joined, the calyx-tube manifestly prolonged above the ovary. Petals 4, yellow, purplish in age. Stamens 8. Stigmas usually conspicuously 4-lobed. Capsule stout, tapering upwards, 4-chambered, opening by 4 valves. Seeds without a coma.

o Low plants without evident stems, the leaves in a tuft 1. O. heterantha

o Coarse plants with evident stems 30-120 cm. tall

Unbranched, erect, the stems 1 m. or more tall, glandular-villous; leaves denticulate; capsules 2.5-3 cm. long; petals 10-12 mm. long 2. O. muricata

Usually branched at the very base but sometimes unbranched, the stems ascending, 40-60 cm. long, not glandular; leaves subentire; pods 2-2.5 cm. long; petals 20-25 mm. long 3. O. strigosa

1. O. heterantha Nutt. Low perennials without evident stems, the leaves in a basal tuft, essentially glabrous, their blades lanceolate to ovate-lanceolate, entire or denticulate, pinnatifid below, 3-15 cm. long, 1-5 cm. wide, narrow into winged petioles of almost the same length; flowers arising in the tuft of leaves, apparently stalked, the stalk, however, a slender sessile ovary and calyx tube 3-10 cm. long; calyx lobes lanceolate, 5-8 mm. long; petals yellow, orbicular-obovate, 8-10 mm. long; stamens of two lengths; style equaling the longer stamens; capsules smooth, somewhat 4-angled, 12-15 mm. long. (O. subacaulis sensu Garrett based on Jussieua subacaulis Pursh, a nomen dubium.).

Craig Mts.; Santianne Cr.; Clearwater R. (all fide Munz, Am. Jour. Bot. 16:250).

2. O. muricata L. An erect coarse annual 100-120 cm. tall, the stem unbranched, glandular-villous, leaves 8-12 cm. long, 1-1.5 cm. wide, narrowly elliptical-lanceolate, acute at both ends, obscurely denticulate,

hirsute, hoary, subsessile; flowers showy in a terminal strict raceme 30-50 cm. long, the buds ascending, the bracts subfoliar, exceeding the sessile ovaries; ovaries 10-14 mm. long, the calyx tube 1-1.5 mm. in diameter, 2.5-3 cm. long, calyx lobes 10-20 mm. long, villous-hirsute, the free tips 2 mm. long, splitting into reflexed pairs at anthesis; petals yellow, 10-12 mm. long; ~~the~~ stamens equal; stigmas 5 mm. long; capsules 2.5-5 cm. long, scarcely 5 mm. in diameter, glandular-villous, ascending.

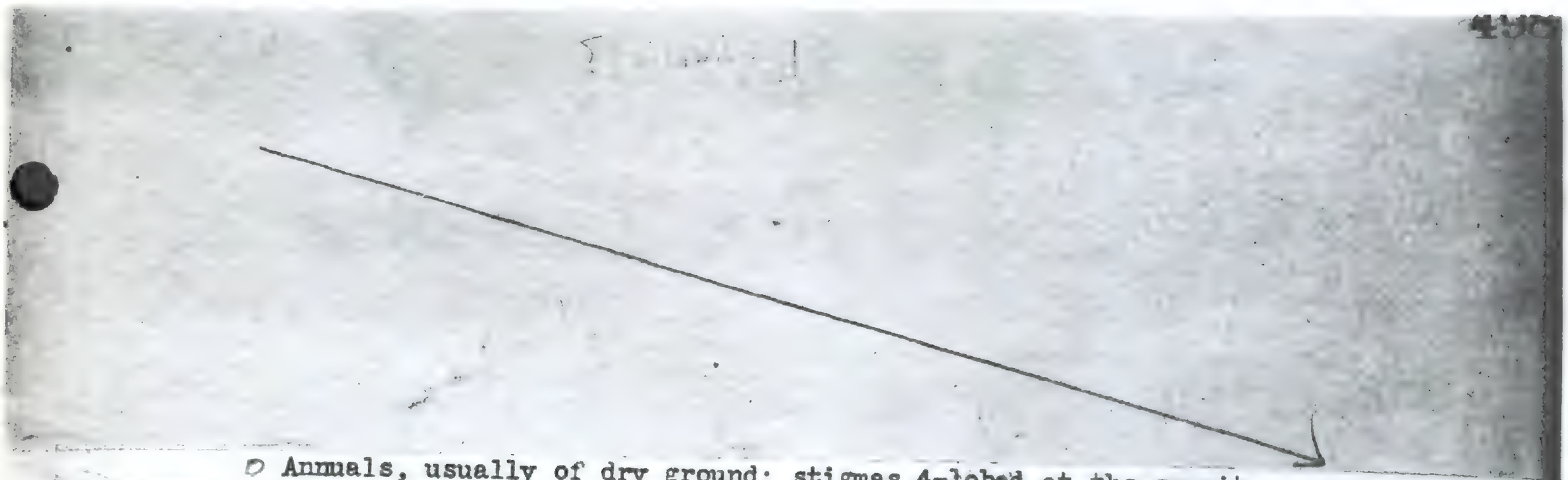
Occasional along roadways and in waste places below 3000 ft.

3. O. strigosa (Rydb.) Mack. & Bush. A biennial herb with several unbranched stems reclining at the base, ascending, 40-60 cm. long, thinly villous; leaves elliptical-lanceolate, 5-7 cm. long, 1-2.5 cm. wide, acute, subentire or denticulate, subglabrous, sessile, the lowermost oblanceolate; flowers showy, the buds ascending, sessile in the axils, the ovary 8-15 mm. long, hirsute-villous, the tube 2-3 cm. long, the calyx lobes 1-3 cm. long, often separating entirely when reflexed, hirsute-villous; petals yellow, 20-25 mm. long; capsules 2-2.5 cm. long, 5-6 mm. in diameter, erect and often appressed to the stalk.

In dry sandy soil along roadways or trails.

3. Epilobium (Gesn.) L. Willow Herb.

Herbs with alternate or opposite leaves, annuals or perennials, the latter propagating by underground stems which may produce at their tips either small rosettes of leaves or small winter buds (turions) which are compact clusters of small fleshy often reddish scales. Flowers perfect, small, borne in racemes in the upper axils. Sepals 4, united in the lower part to form a short tube. Petals 4, white, rose-color or violaceous, equal, commonly notched. Stamens 8, not deflexed. Style club-shaped or 4-cleft at the apex. Capsule linear, 4-angled, 4-chambered, opening by 4 valves. Seeds comose.



○ Annuals, usually of dry ground; stigmas 4-lobed at the summit

corollas

2 Stems crisp-puberulent; [redacted] scarcely 1.5 mm. long — 1. E. minutum

2 Stems glabrous and glaucous or partly glandular with
6 spreading hairs; [redacted] 2-10 mm. long — 2. E. paniculatum

corollas

○ Perennials, usually of moist ground or boggy places;
4 stigmas entire, club-shaped

2 Plants prevailingly 40-90 cm. tall

4 Stems hairy throughout with spreading hairs, ~~stems~~
3 tending to remain simple; petals 8-9 mm. long — 3. E. Sandbergii

4 Stems glabrous in the lower parts, crisp-puberulent
8 < in lines and spreading glandular only in the
upper parts

6 Petals 4.5-5.5 mm. long; coma white; stems tend-
10 < ing to branch in the upper axils; propagating
by rosettes — 4. E. adenocaulon

6 Petals 5-8 mm. long; coma dingy; stems tending
10 to remain simple; propagating by turions — 5. E. glandulosum

2 Plants prevailingly 10-40 cm. tall, their stems
6 infrequently branching

4 Propagating by turions

6 Plants not at all glandular, crisp-puberulent,
10 < rarely more than 10 cm. tall; leaves 5-15 mm.
long — 6. E. leptocarpum

6 Plants pubescent in the upper parts with spreading
glandular hairs; leaves 15-50 mm. long

Cap. 2 ~~Stems leafy to the top, the~~ leaves very gradually
12 diminished upwards to the top

10 Stems very strict, the leaves sessile and
4 clasping, 4-10 mm. wide, coma dingy — 7. E. Drummondii

10 Stems erect and usually unbranched, the leaves
4 subsessile or narrowed to very short petioles
mostly 10-20 mm. wide; coma white — 8. E. brevistylum

Leaves of the inflorescence markedly smaller than those lower on the stems; flower clusters nodding, but the capsules erect — 9. E. tenue

Propagating by stolons or underground stems

Flowers rose-purple or violaceous, 4-6 mm. long

Mature pedicels 2-4 cm. long; upper leaves markedly diminished in size — 10. E. oregonense

Mature pedicels 1-2.5 cm. long; upper leaves smaller but not markedly diminished

Plants densely caespitose; seeds smooth; leaves mostly sessile and oval, usually broadest near the middle — 11. E. alpinum

Plants often gregarious; seeds roughened; leaves mostly on short petioles, ovate, broadest below the middle — 12. E. Hornemannii

Flowers white, 3-4 mm. long — 13. E. lactiflorum

1. E. minutum Lindl. A graceful annual 15-40 cm. tall, crisp-puberulent throughout, not glandular, commonly branched, the branches slender, the internodes 2-5 cm. long; leaves elliptical-lanceolate, 1-2.5 cm. long, 2-5 mm. wide, mostly entire, narrowed at the base to an indefinite petiole 1-3 mm. long; flowers numerous, scarcely 1.5 mm. long, the calyx tube about one quarter the length of the sepals; ~~pods~~ capsules 15-20 mm. long, 1 mm. in diameter, seeds smooth, .8 mm. long, the coma easily deciduous.

Frequent in dry soil in the open.

2. E. paniculatum Nutt. A slender erect annual 30-60 cm. tall, the branches many, slender, the internodes 2-4 cm. long, mostly glabrous and glaucous, some usually abruptly glandular; leaves 1-3 cm. long, 2-4 mm. wide, linear-lanceolate, the upper much reduced and bractlike, all nearly entire or remotely denticulate, both surfaces glabrous; flowers numerous, 2-3 mm. long, the calyx tube subequal to the sepals; ~~pods~~ capsules 2-2.5 cm. long, 1 mm. in diameter, some glandular, some smooth on the same plant, the mature pedicels 5-15 mm. long; seeds 1.5 mm. long, the coma readily deciduous.

In dry ground along roadways, trails and in burns, throughout our region.

var. jucundum (Gray) Trelease. Flowers 5-10 mm. long, the petals twice the length of the sepals, the sepals twice the length of the calyx-tube; ~~ped~~ capsules somewhat stouter, as much as 3 cm. long, the pedicels somewhat shorter.

—Lake Coeur d'Alene; Revett Lake, 5500 ft.; Princeton.

3. E. Sandbergii Rydb. Slender, erect turion-forming perennials 60-80 cm. tall, simple to the inflorescence; stems puberulent throughout with spreading hairs, more or less glandular above; leaves 3.5-7.5 cm. long, oblong-lanceolate, acute, denticulate, rounded at the base, on obscure

petioles 1-1.5 mm. long, both surfaces or at least the veins thinly pubescent with spreading hairs; calyx limb 5-6 mm. long, glandular; corolla 8-9 mm. long, rose-purple; capsules 5.5-6 cm. long, spreading glandular, the pedicel as much as 1.5 cm. long.

Occasional in meadows and river bottoms or lagoons at lower elevations. Mud Lake, Sandberg 737 (type); Upper Priest R., Sipe.

4. E. adenocaulon Hausskn. Perennial stoloniferous herbs 60-90 cm. tall, with small autumn rosettes; stems branching above, crisp-puberulent and pubescent with short spreading glandular hairs, glabrous below; leaves 4-8 cm. long, 1-2.5 cm. wide, ovate-lanceolate or oblong-lanceolate, acute, rounded at the base, mostly narrowed to petioles 1 mm. long or less, shallowly and remotely denticulate, both surfaces soon glabrate; calyx limb 3.5-4 mm. long, glandular; petals 4.5-5.5 mm. long, white, becoming pink; capsules 4-8 cm. long on pedicels .5-1.5 cm. long, pubescent with spreading glandular hairs; seeds roughened under the lens; coma white.

Throughout our region in moist or muddy ground.

var. occidentale Trel. Rather densely branched in the upper parts, commonly more hairy; petals rose-purple. With the species.

5. E. glandulosum Lehm. Perennial turioniferous herbs 60-90 cm. tall, the stems prevailingly simple, glabrous below, pubescent with short spreading glandular hairs above; leaves 4-8 cm. long, 1-2.5 cm. wide, rather thin, ovate-lanceolate or oblong-lanceolate, acute, rounded at the base, subsessile or with short petioles 1-2 mm. long, shallowly and remotely denticulate, both surfaces glabrous; calyx limb 3.5-4 mm. long, glandular; petals rose-purple, 5-8 mm. long; capsules 4-8 cm. long, on pedicels .5-1.5 cm. long, pubescent with spreading glandular hairs; seeds roughened under a lens; coma dingy white.

6. E. leptocarpum Hausskn. var. Macounii Trel. A low turioniferous perennial 5-10 cm. tall, stems slender, unbranched or with short lateral branches, internodes 2-10 mm., glabrous except for crisp-puberulent decurrent lines; leaves rather fleshy, 5-15 mm. long, mostly ovate, obtuse, rounded or narrowed at the base, nearly entire, glabrous, often reddish, on very short petioles; corolla 3-4 mm. long; mature capsule crisp-puberulent, 2-3.5 cm. long, on slender pedicels 1-2 cm. long.

Crevices of rocks, subalpine, near south end of Lake Pend Oreille, Sandberg 746.

7. E. Drummondii Hausskn. Perennial turioniferous herbs with erect strict and unbranched stems 30-50 cm. tall, leafy throughout, the leaves very gradually diminished in size and somewhat crisp-puberulent and glandular above with spreading hairs; leaves narrowly oblong-lanceolate, 2.5-5 cm. long, 4-10 mm. wide, broadest near the base, sessile and clasping, ascending like the arms of a semaphore, denticulate; calyx-limb 3-4 mm. long, crisp-puberulent; petals white, 4 mm. long; ovary somewhat glandular; capsules 3-4 cm. long; coma dingy-white.

Occasional in boggy ground or in meadows. Granite Sta., Sandberg; Spokane Meadows, Epling and Kemof.

8. E. brevistylum Barbey. Slender turioniferous usually unbranched herbs, stems 15-30 cm. tall, puberulent with curled hairs in decurrent lines, leafy to the inflorescence, the leaves narrowly ovate or oblong-lanceolate, rounded at the base and sessile, ascending, 2-5 cm. long, 8-20 mm. wide, evenly denticulate with small teeth, glabrous; calyx limb 4-4.5 mm. long, the lobes acute, about twice as long as the tube, both limb and ovary thinly glandular-puberulent; corolla 3-5 mm. long, white to purplish; capsules 2.5-3.5 cm. long; seeds 1.5 mm. long, smooth, coma white.

In subalpine meadows or in similar communities along streams at lower elevations. Fish Lake, 6000 ft.; N. Fork Clearwater R., 3000 ft.; Fish Lake Cr.

9. E. tenue (Trel.) Epling. Slender turioniferous perennial herbs, stems 15-30 cm. tall, crisp-puberulent and thinly glandular; leaves rather remotely spaced, prevailingly lanceolate, sessile, acute, 1.5-3 cm. long, 4-8 mm. wide, glabrous, subentire or denticulate, those of the inflorescence markedly reduced in size; flower clusters nodding; calyx limb 2.5-3 mm. long, crisp-puberulent, the ovaries mostly glandular; petals pink, 4-5 mm. long; capsules 2.5-3 cm. long, erect in fruit, glandular; seeds papillose, the coma white. (E. delicatum Trel. var. tenue Trel.).

Frequent in subalpine meadows or similar situations at lower elevations.

10. E. oregonense Hausskn. Slender unbranched perennial herbs 15-30 cm. tall, glabrous to the capsule; stems very slender, the leaves ascending or erect, crowded toward the base, remote above, 1-2 cm. long, 2-4 mm. wide, the lower narrowly ovate, the upper oblong, all obtuse, narrowed at the base, sessile, entire; flowers few in the upper axils, sepals 2.5 mm. long, obtuse, the tube 1 mm. long; petals violet, 5-6 mm. long, notched; capsules slender, erect, 3-4 cm. long sparingly hirtellous, exceeding the stems, borne on pedicels of nearly equal length; seeds smooth.

In subalpine bogs or moist places. Oxford R. S., 4000 ft. Epling and Houck 9668.

11. E. alpinum L. Densely caespitose stoloniferous plants, the stems 10-15 cm. tall, crisp-puberulent in lines, somewhat glandular above; leaves thin and smooth, oval and mostly widest at the middle, sessile, or the lower leaves shortly petioled, entire, very blunt or rounded at the apex, 1-1.5 cm. long, 6-12 mm. wide; calyx limb 3 mm. long, the lobes obtuse; corolla purple or rose-colored, 4-6 mm. long; seeds smooth.

Vanderbilt Gulch, 5000 ft.; Bearskull Mt., 6000 ft.; Fish Lake, 6000 ft.; South Baldy Mt., 6000 ft.

12. E. Hornemanni Reichenb. Erect or procumbent stoloniferous ~~stoniferous~~ perennial herbs, frequently with several tufted stems 10-30 cm. tall, glabrous below, crisp-puberulent in longitudinal lines above; leaves glabrous, 1-4.5 cm. long, .5-2.5 cm. wide, ovate, hardly acute, rounded at the base and narrowed to a petiole 2-3 mm. long, the margin subentire; flowers few, in the uppermost axils, erect; sepals glabrous, 2.5-3 mm. long, the tube 1 mm. long; petals rose-purple or even bluish, notched, 5-7 mm. long; capsules slender, erect, glabrous or sparingly glandular with short spreading hairs, 3-4 cm. long, borne on pedicels 1-2.5 cm. long; seeds very minutely roughened.

In muddy places along margins especially of subalpine rivulets.

13. E. lactiflorum Hausskn. Low caespitose herbs with slender erect stems crisp-puberulent in lines, somewhat glandular above, 15-30 cm. tall; leaves thin, oval or oblong-elliptical, mostly obtuse, entire, 1.5-2.5 cm. long, 6-12 mm. wide, borne on short petioles 1-2 mm. long; calyx-limb 3-4 mm. long, the lobes obtuse; corolla white, 3-4 mm. long; ~~pods~~ capsules 3-5 cm. long, sparingly glandular; seeds smooth.

Crevices of rocks, Packsaddle Peak; Fish Lake, 6000 ft.; Spokane Mdws.; Fish Lake Cr., 5000 ft.; Upper Priest R.

4. Chamaenerion (Gesn.) Boehmer-Ludwig.

Perennial herbs with alternate leaves. Flowers showy, slightly zygomorphic, borne in racemes or even panicles. Sepals 4, the calyx tube not prolonged above the ovary. Petals 4, rose-purple. Stamens 8, the filaments deflexed. Style 4-lobed at the apex. Capsule linear, lightly angled, opening by 4-valves. Seeds comose.

3 Plants 1.2 m. tall, the flowers in showy racemes
4 or even panicles — 1. C. angustifolium

3 Plants 30-40 cm. tall, the flowers in the axils of
4 the uppermost leaves — 2. C. latifolium

1. C. angustifolium (L.) Scop. Fire Weed. An erect herb branching only in the inflorescence, 1-2 m. tall; leaves numerous, 10-20 cm. long, 12 cm. wide, narrowed and more or less acute at both ends, nearly sessile, glabrous, paler beneath; raceme terminal, showy or in vigorous plants a panicle 2-4 dcm. long, the lower bracts leaf-like, the upper linear, shorter than the pedicels; calyx lobes narrowly oblong, 10-12 cm. long, acute, purple, soon reflexed, the lowermost somewhat longer than the upper; petals broadly obovate,, the lowermost narrower than the upper pair; stamens declined somewhat; style strongly deflexed and closed during anthesis, erect and open afterward, the lobes recurving; ovary canescent with short hairs, 1.5 cm. long; ~~pods~~ capsules 4-7 cm. long, erect or ascending on pedicels 1-1.5 cm. long; seeds scarcely 1.5 mm. long, the tuft 1 cm. long.

A very common weed appearing especially in new burns, sometimes within a few months after a severe fire.

2. C. latifolium (L.) Sweet. Stems 30-40 cm. tall, unbranched, smooth, the internodes 1-2 cm. long; leaves sessile, the blades elliptical to lanceolate, 4-6 cm. long, 1-1.5 cm. broad, narrowed at both ends, upper surface glabrous, the lower thinly pubescent; racemes open, leafy, the flowers on pubescent pedicels about 1 cm. long, the ovary 12 mm. long, pubescent , the calyx lobes oblong-lanceolate, 12 mm. long, spreading; petals broadly obovate, 1.5-2 cm. long, the lower pair somewhat smaller than the upper; style half the length of the stamens, strongly deflexed; pod 6-8 cm. long.

Seen only on sandbars in the Upper Priest R., Epling 7564; Sipe.

5. Boisduvallia Spach.

Erect annuals with alternate sessile leaves. Flowers axillary, not conspicuous. Sepals 4, the calyx tube prolonged above the ovary. Petals 4, 2-lobed, rose-purple, violaceous or rarely white. Stamens 8, those opposite the petals shorter, all fertile. Stigma 4-lobed. Capsule tapering, not angled or flattened, 4-chambered, opening by 4-valves. Seeds without a coma.

- Leaves 1-1.5 cm. long; capsule 6-8 mm. long — 1. B. glabella
- Leaves 3-5 cm. long; capsule about 1 cm. long — 2. B. salicina

1. B. glabella (Nutt.) Walp. Stems 10-20 cm. tall, branching chiefly at the base, arcuate-ascending, rather thinly crisp-pubescent throughout; leaves opposite below, alternate above, narrowly ovate, 1-1.5 cm. long, 5-7 mm. wide, rounded at the base, the margins entire or remotely denticulate; flowers sessile, the calyx 1.5 mm. long, the lobes equal to the tube, acute; petals exceeding the calyx by scarcely more than 1 mm., deeply incised; capsule 6-8 mm. long, spreading outwards, lightly curved, pubescent, tapering; seeds ovate-lanceolate 1.2 mm. long.

Dried soil of fields. Moscow, Henderson; Christ 1312.

2. B. salicina Rydb. Stems erect, 30-50 cm. tall, softly pubescent throughout with short spreading hairs; leaves opposite below, alternate above, narrowly lanceolate-oblong, 3-5 cm. long, 4-8 mm. wide, narrowed at the base, acute, the margins entire or remotely toothed; flowers sessile, the calyx 5 mm. long with lobes equal to the tube, acute; petals exceeding the calyx by 1-1.5 mm., deeply incised; capsule about 1 cm. long, erect, lightly curved, pubescent, tapering somewhat at the apex; seeds .8 mm. long, ovate-flattened, smooth.

Low ground. →

Paradise Cr., Moscow, Henderson; N. Fork Coeur d'Alene R., Leiberg 1528.